

# Guide to Esco Products and Services 2015-2016

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Dedicated to delivering innovative solutions for the clinical, life sciences, research, industrial, laboratory, pharmaceutical and IVF community



**ESCO**  
WORLD CLASS. WORLDWIDE.

## Guide to Esco Products and Services

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## Welcome to Esco

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



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

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

**High Quality, Reliable and Dependable.** Our customers are confident that only with the best quality, reliable, and dependable products, can they be sure of the accuracy of their research and procedures. Cross functional teams from Esco Production, R&D, Quality Assurance and Senior Management, are regularly assembled to review and implement areas for improvement.

**Esco Cares for Your Safety.** Esco focuses on providing safety not just for your samples but also for users.

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

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

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

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

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# Tradition of Quality & Innovation

**1978**

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

**1984**

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

**1990**

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

**2000**

Esco begins transformation into a life sciences tools company

**2001**

Esco earns first EN 12469 certification for biological safety cabinet.

**2004**

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

**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.



**2006**

Esco earns on-site UL accreditation

**2007**

Esco became member of NSF Joint Committee and JACA Committee.

Esco launches VIVA® Animal Containment Workstations

Worldwide expansion of sales and services through the establishment of offices in USA, UK, China and Bahrain



**2008**

Esco launches Isoclean® - new compounding pharmacy isolators.

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

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

Esco launches 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.



**2009**

Esco launches Isotherm® - new Laboratory Ovens and Incubators.

Esco launches Pharmacon™ new Downflow Booths.

Esco launches Swift® MaxPro and MiniPro new generation PCR thermal cyclers

Esco launches Labculture® In Vitro Fertilization Workstations.





**2010**

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

**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.

**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 Embryo  
Incubator.



Esco Pharma equipment was launched at  
PMEC China exhibition.

**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.



Esco launches Miri® GA Gas and  
Temperature Validation Unit



Esco launches Anti-Vibration Table



Esco launches Fertilisafe™ IVF Workstation



Miri® Time-Lapse incubator

**2014**

Esco launches CelCulture®  
CO<sub>2</sub> Incubator  
(Direct Heat Air-Jacketed,  
Water Jacketed and  
With Cooling System)



Esco launches Biostream®  
Biosafety Cabinets  
Class II Type A2 cabinet for  
Japan market



Esco launches AgriSafe® Food Safety  
Cabinets for the Food Industry



Esco launches OrbiCult™ Shaker



Esco launches CelSafe® CO<sub>2</sub> Incubators



Esco launches NSF version of  
Airstream® Class II Cabinets,  
the leading energy efficient  
biosafety cabinet in the world



Esco launches Gen 2 VIVA® Dual  
Access Animal Containment  
Workstations, the quietest  
animal containment workstation  
in the world.



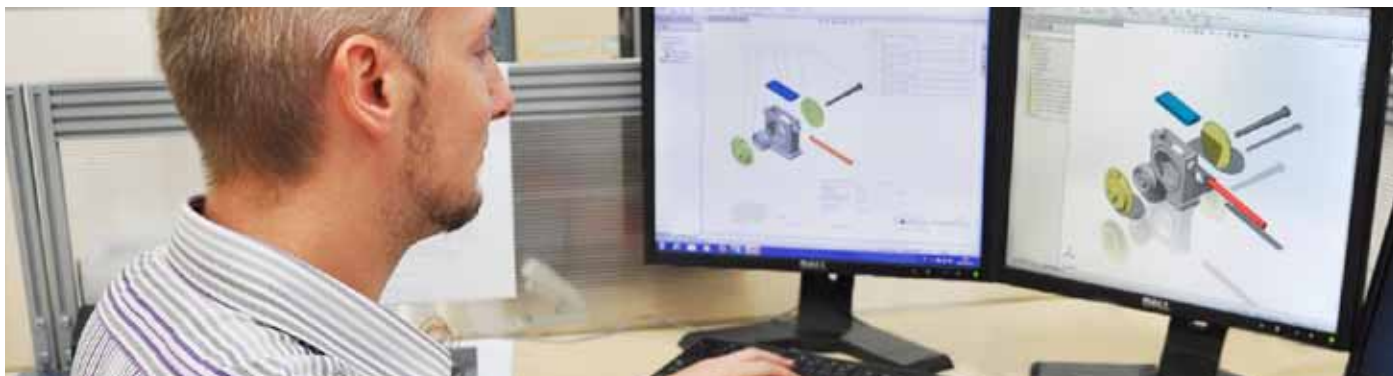
Esco Launches Airstream® Reliant  
Biosafety Cabinets with simple  
switches, and UL and NSF  
certified (4ft. model).



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## 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.

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

## Production and Quality



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

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

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

## Products and Application

### Life Sciences Laboratory Equipment

#### Sample Preparation

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

#### Sample Cultivation

- CO<sub>2</sub> Incubators with Cooling System
- CO<sub>2</sub> Incubators with Stainless Steel Exterior
- CO<sub>2</sub> Incubators (Water Jacketed)
- Laboratory Shakers

#### Sample Analysis

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

#### Sample Storage & Sample Protection Solutions

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

#### Chemical Research

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

#### General Equipment

##### Laboratory Thermostatic Products

- Laboratory Oven
- Laboratory Incubator
- Refrigerated Incubator
- Constant Climate Chamber

### Medical / IVF Equipment

- Time-Lapse Embryo Incubators
- Benchtop Multi-room Embryo Incubators

- CO<sub>2</sub> Incubators
- IVF Workstation

- Anti-Vibration Table
- CO<sub>2</sub> / O<sub>2</sub> Temperature Validation Unit

### Pharmaceutical Equipment

#### Airflow Containment

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

#### Isolation Containment

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

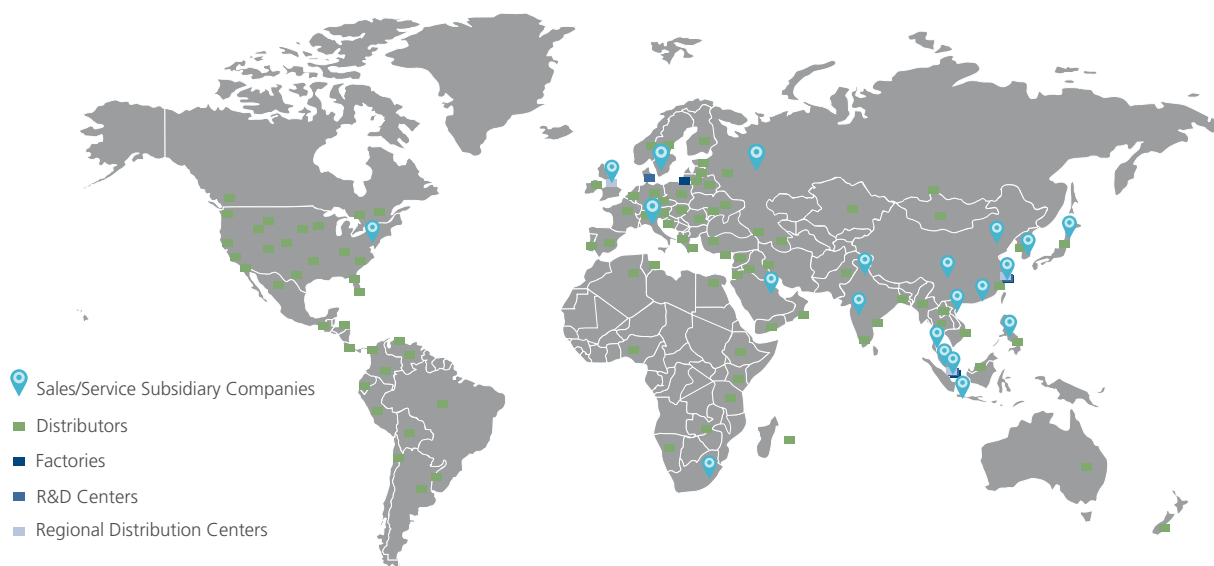
#### Cross Contamination Facility Integrated Barrier

- Cleanroom Air Showers
- Air Shower Pass Box
- Cleanroom Transfer Hatch
- Pass Boxes
- Soft Wall Cleanroom
- Dynamic Passboxes and Dynamic Floor Label Hatches

#### Barrier Isolation System

- Pharmacy Compounding Aseptic Containment Isolator (Recirculating)
- Pharmacy Compounding Aseptic Isolator
- Cytotoxic Safety Cabinets

## Global Network



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## Life Science | Sample Preparation

### Biological Safety Cabinets



Class II Type A2  
NSF Certified

Class II Type B2  
NSF Certified

Class II  
EN Certified

Class III  
EN Certified

Custom Biological  
Safety Cabinets

Food Safety  
Cabinets



#### 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 DC ECM blower\*
- ISOCIDE™ antimicrobial powder coating
- ULPA Filter with > 99.999% efficiency at 0.1 – 0.3 µm
- Large performance envelope
- Ergonomic design
- Low noise
- Easy to clean

\*most models

#### Product Lines

- Class I, Biological Safety Cabinets

\* Brands Available: Airstream®

- Class II, Type A2 Biological Safety Cabinets

\* Brands Available: eSafe®, NordicSafe®, Airstream®, Labculture®, Labculture® Reliant, Airstream® Reliant, Streamline®, Biostream®

- Class II, Type B2 Biological Safety Cabinets

\* Brand Available: Labculture®

- Class III Biological Safety Cabinets

\*Brand Available: Airstream®

- Lead-Shielded Class II Biological Safety Cabinets

\*Brands Available: Cytoculture®

- Food Safety Cabinets

\*Brands Available: AgriSafe®

#### Certifications

NSF / ANSI 49



JIS K3800



EN 12469



UL 61010



SFDA YY-0589



SANS 12469



Public Health of  
England





## Laminar Flow Clean Benches

### Horizontal Laminar Flow Clean Benches



### Vertical Laminar Flow Clean Benches

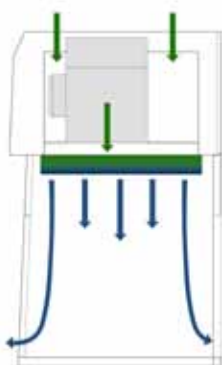


### Introduction

Esco is an industry leader in the development of professional quality laminar flow clean benches for the global life sciences market. 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.

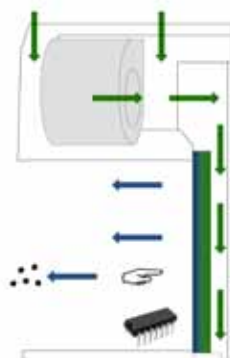
Our selection of Vertical, Horizontal and Specialty clean benches offers a variety of choices for installations where high quality construction is essential. Our clean benches are aerodynamically engineered and use only premium quality ULPA filters with integrated motor/blower assemblies for quiet operation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

### Product Lines

- Horizontal Laminar Flow Clean Benches
- Reverse Horizontal Flow Cabinets
- Vertical Laminar Flow Clean Benches

## Lab Animal Research Workstations

Dual Access Animal Containment Workstations



Bedding Disposal Animal Containment Workstations



Universal Animal Containment Workstations



### Introduction

Animal research, cage changing and bedding disposal procedures are now simpler, safer and more productive with the Esco range of VIVA® Animal Containment Workstations. 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 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 Animal Containment Workstations
- Dual Access Animal Containment Workstations
- Bedding Disposal Animal Containment Workstations

\*Brand Available: VIVA®



## Freeze Dryers



### Freeze Dryers

#### Introduction

Introducing Esco SubliMate®, the new series of world-class laboratory freeze dryers. Three models are available with compact designs and can achieve low condensation temperatures down to -90°C. The LusterClear™ ice condenser design allows for easy cleaning and prevents damage to cooling coils during ice core removal. The large touchscreen on SmarTouch™ controller delivers an ergonomic, intuitive interface and easy-to-use programming. The innovative new EzySeal™ valve design provides easy drying for flasks. The pressure sensors and IceOut™ defrost system come standard for discerning researchers.

#### Features

- Low condenser temperature down to -90°C
- 2 kg and 5 kg ice capacity for multiple cycles before defrosting
- LusterClear™ fully flushed and clean condenser surface design 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
- EzySeal™ rubber valve design for easier flask fitting, sealing, drying and removal
- Pressure sensor and IceOut™ defrost system

#### Product Line

- Freeze Dryer

\*Brand Available: SubliMate®

## Life Science | Sample Analysis

### PCR Thermal Cyclers

### Microplate Shakers

### PCR Cabinets

#### Conventional Thermal Cyclers

#### Real-time PCR System



#### Conventional Thermal Cyclers

##### Introduction

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.

##### 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

##### Product Line

- Conventional PCR Thermal Cycler

\* Brands Available: Aeris™, Swift™

#### Real-time PCR Systems

##### Introduction

The Esco Swift™ Spectrum PCR 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.

##### 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

##### Product Lines

- Spectrum 48 Real-time PCR Thermal Cyclers
- Spectrum 96 Real-time PCR Thermal Cyclers

\*Brand Available: Swift™

#### 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.

##### Product Line

- Microplate Shaker/Incubator

\*Brand Available: ProvoCell™

#### 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.

##### 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')

##### Product Line

- Polymerase Chain Reaction Cabinets

\*Brands Available: Airstream®, Streamline®

## Life Science | Sample Cultivation

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



#### Introduction

Esco CO<sub>2</sub> Incubators offer the best temperature and CO<sub>2</sub> control providing superior protection for your cell cultures. Sleek, reliable and intuitive, the Esco CO<sub>2</sub> incubators provide comprehensive sample protection that brings your scientific dreams one step closer to reality.

#### Features

- **Precise Parameter Control**
  - Best uniformity and control among competition, which means samples are evenly heated.
  - Fast CO<sub>2</sub>, temperature and humidity recovery without overshoot
  - 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
  - Water-Jacketed models can hold the chamber temperature much longer when power is lost
- **Robust Contamination Control for Optimum Protection**
  - SteriSafe™ ULPA Filtration System
  - Validated SwiftCon™ 90°C Moist Heat Decontamination Cycle (CelMate® and CelCulture®)
  - 200°C High Heat Sterilization Cycle (CelSafe®)
- **Provide maximum safeguarding of cell cultures via Voyager software system**
  - It is a centralized monitoring and control system for your laboratory which provides extra protection for your samples.
  - With alarms to alert user when exceeding predefined parameter limits
- **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
- **Filtered Gas Injection Lines**
- **ISOCIDE™ Antimicrobial Coating**

#### Product Lines

- CO<sub>2</sub> Incubators

\*Brand Available: CelMate®

- CO<sub>2</sub> and CO<sub>2</sub>/O<sub>2</sub> Incubators

- Direct Heat Air-Jacketed

- Water-Jacketed

- With Cooling System

\*Brand Available: CelCulture®

- Stainless Steel Exterior

- Copper Interior

- CO<sub>2</sub> and CO<sub>2</sub>/O<sub>2</sub> Incubators

- Direct Heat Air-Jacketed

- Copper Interior

\*Brand Available: CelSafe®

#### Certifications

HPA (Moist Heat Decontamination)

UL Listed

MEA (Mouse Embryo Assay)

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## Life Science | Sample Cultivation

### Laboratory Shakers

#### Benchtop Ambient Shaker



#### Benchtop Incubator Shaker



#### Introduction

Esco offers laboratory shakers that fit all your needs. Cutting Edge Technologies, Robust Mechanism, Flexible Accessories, Intuitive Interface and Environmental Friendly Design – making sure that Esco laboratory shakers deliver outstanding features and excellent performance year after year.

#### Features

- TriDrive™: Esco unique triple – eccentric counterbalanced drive supports heavy duty and high – speed applications
- RobustDrive™ mechanism eliminates the need for lubrication as the Brushless DC Motor saves maintenance worries
- SmartRun™: Excellent out – of – balance sensor & proprietary imbalance compensation algorithm ensures smooth operation without any vibration.
- Microprocessor P.I.D. controller enables accurate temperature, gas, speed and running time settings to deliver reproducible results
- Unparalleled design provides broader temperature and speed control range
- Intelligent CO<sub>2</sub>, O<sub>2</sub> & humidity control technology with accuracy of up to 1% (ISS2 only)
- DualSafe™: Innovative moisture heat & air flow UV decontamination method, maximizes the decontamination effects to protect your sensitive cells from contaminations (ISS2 only)
- Programmable design: unit's memory can store up to 25 programs, each program has up to 25 unique time – based steps
- Multiple accessories choices allow you to customize most suitable solution for your applications

#### Product Lines

- Benchtop Ambient Shaker: for Ambient Shaking Application
- Benchtop Incubator Shaker: for Constant Temperature Shaking Application

\*Brand Available: OrbiCult™

## Upright Ultra-low Temperature Freezers

Standard Controller



Advanced Controller



Touchscreen Controller



### Introduction

The Lexicon® II series ULT freezer incorporates the best and most complete sample protection and sample organization system of any ULT freezer manufacturer. 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 Esco ULT Freezers at extreme conditions. All Esco ULT 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 ULT Freezers 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
- Touchscreen user interface (for Aalto Platinum Controller)
- Complete event monitoring and logging system
- 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
- PROtect Redundant Wireless Sample Monitoring System
- Email alerts via Wi-Fi (for Aalto Platinum Controller) and network cable in case of sample threatening alarms
- Unique predictive failure management and freezer health monitoring system (for Aalto Platinum Controller)
- Battery back-up to 72 hours (for Aalto Platinum Controller) and available LCO<sub>2</sub> and LN<sub>2</sub> backup systems.
- SampleTracker inventory management system to track all stored samples. (for Aalto Platinum Controller)
- iRMAP™ allows for an additional optional Esco service to allow Esco to monitor freezers from a remote location (for Aalto Platinum Controller)

### Product Lines

- Ultra-low Temperature Freezer with Silver Controller (Standard)
- Ultra-low Temperature Freezer with Gold Controller (Advanced)
- Ultra-low Temperature Freezer with Platinum Controller (Touchscreen)

\*Brand Available: Lexicon® II

### Certification

UL Listed



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## Laboratory Refrigerators and Freezers

### HP Lab Refrigerators and Freezers



#### Introduction

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 superior levels of cold storage performance, reliability, and flexibility are needed, the Esco HP series of Laboratory Refrigerators and Freezers are the best choice

#### Features

- **High Performance**
  - Superior forced-air design instead of regular cold wall for both refrigerators and freezers.
  - Rapid cool down and very fast recovery due to fan assistance.
  - Fast temperature equilibration; superior sample protection.
  - Intelligent automatic defrost to minimize temperature changes during ice defrost
- **Sample Safety**
  - Door lock provides additional security for expensive samples and reagents from unauthorized users.
  - External surfaces are powder-coated with Esco ISOCIDE™ to eliminate 99.9% of surface bacteria within 24 hours of exposure.
  - Triple-pane glass doors for refrigerator models to easily locate needed samples or reagents with the door closed, preventing risks. Triple-pane doors provide superior insulation compared to any other glass door technology.
  - Door will automatically close under 90° when released to maintain temperature and to protect samples.
  - Audible alarms during door opening, high/low temperature, power failure and clogged condenser filter.
- **User Friendly**
  - Comfortable, ergonomic handle
  - Internal LED lighting
  - Wheels with integral brakes are included on every model
  - Door automatically closes when released to maintain temperature and to protect samples

#### Product Lines

- Lab Refrigerator (+2°C to +15°C)
- Lab Freezer (-10°C to -25°C)
- Deep Freezer (-20°C to -40°C)
- Combined Refrigerator and Freezer

*\*Brand Available: HP Series*



## Sample Database Management Software

# SampleTracker

### Introduction

SampleTracker is a comprehensive Biosample Inventory Management solution, which can be connected to Esco Lexicon® II Aalto Platinum. The Software tracks the sample management activities throughout its life cycle. This software has the capability required for the Sample Inventory Management and Tracking customized for all sizes of laboratories, managing different types of samples and having various types of storages. Flexibility in configuration of laboratories and sample attributes is one of the unique characteristics of SampleTracker.

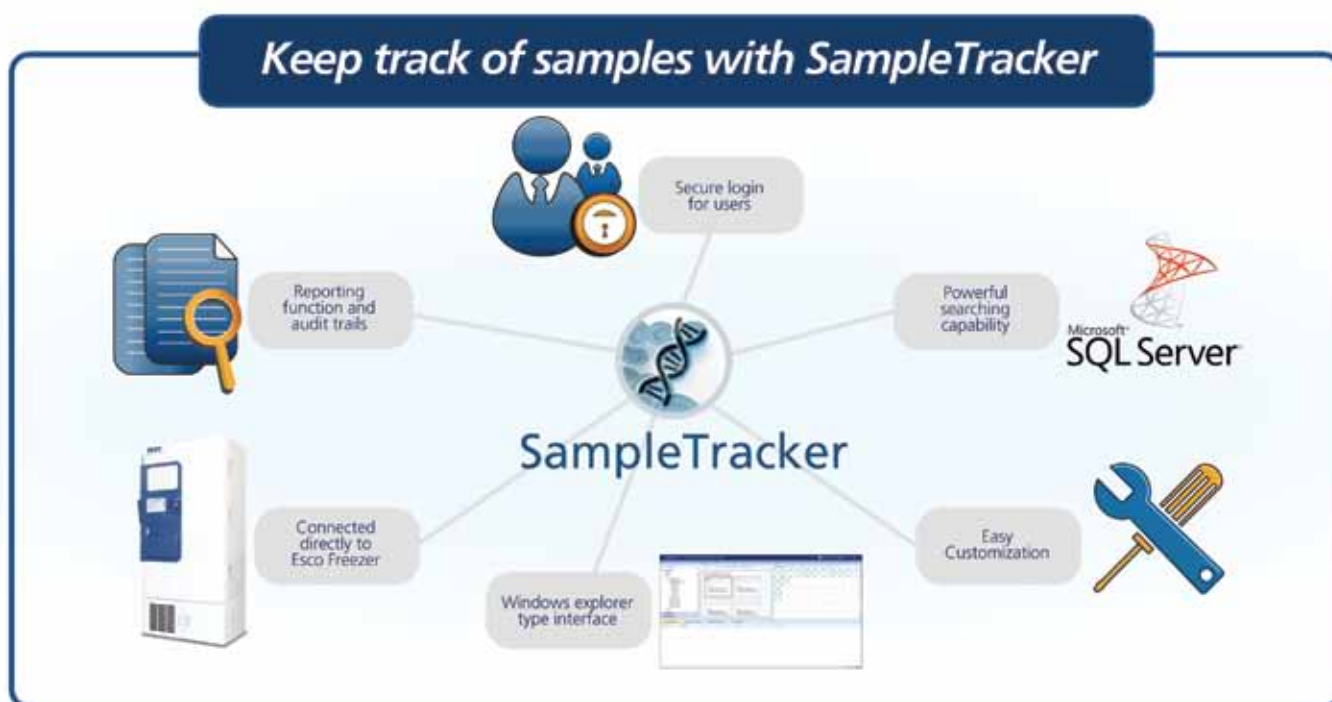
SampleTracker automatically generates a unique identification number for each sample, which makes it easy for users to trace the sample as and when required.

### Features

- Secure login for user
- Powerful searching capability using SQL server
- Easy customizable field and storage template to suit any laboratory configuration
- Barcode label creation for easy check-in and check-out
- Easy to use similar to Windows Explorer template
- Integration of sample database with an Esco Aalto Platinum controller freezer
- Ability to generate audit trail compliant to 21 CFR Part 11

### System Requirements

- SampleTracker Server
  - Operating system: Windows XP, 7, 8, and Windows 2003 and 2008 Server. (English)
  - Memory: 4 GB
  - Hard disk space: 4 GB
  - Prerequisite Software: .NET Framework 4.0 (included) SQL Server 2008 R2 Express (included) or higher
- SampleTracker Client
  - Operating system: Windows XP, 7, 8, and Windows 2003 and 2008 Server. (English)
  - Memory: 1 GB
  - Hard disk space : 1 GB
  - Prerequisite Software: .NET Framework 4.0 (included)



## Life Science | Sample Protection



## Remote Monitoring, Datalogging, Programming Software

### Voyager®

#### Introduction

Esco Voyager® is a PC-based software package developed for the remote monitoring, data-logging and programming/device configuration of Esco controlled environment laboratory equipment. This software has the capability to push updates to Esco equipment connected to the software. In any event of equipment failure, the software is able to send out remote alarm notification through e-mail or SMS with a modem configured. It is also compliant to 21 CFR Part 11 standard for traceability.

#### Features

- Remote Monitoring and Data Logging
  - Automatic, continuous monitoring of device parameters (Temp, CO<sub>2</sub>, RH, etc.)
  - Viewing and graphing device parameters in real-time
  - Saving and exporting log data in various formats
  - Automatic emailing of log data at user-defined intervals
  - Download of data logs from equipment memory (only for devices with built-in data logging memory, i.e. CO<sub>2</sub> Incubators)
- Alarm
  - Alarms when exceeding a user-defined parameter limit
  - Automatic email alerts
  - Documentation of all alarms with time/date stamp
- Remote Programming and Equipment Configuration
  - Development of programs using a graphical interface, for subsequent download to device memory (only for equipment with program functions, i.e. Forced Convection Laboratory Ovens and Incubators)
  - Configure devices remotely (set points, local alarm limits, etc.)



#### System Requirements

- Operating system: Windows 2000, XP, 7, and Windows 2003 Server. (English)
- Memory: 512 MB
- Hard disk space: 1 GB
- Interface: USB/RS232
- Prerequisite Software: .NET Framework 2.0 (included) Windows Installer 3.1 (included)

#### Compatible Equipment

- Lexicon® – Ultra-Low Temperature Freezer v. 1 (with U-Series Controller)
- CelCulture® – CO<sub>2</sub> Incubator (CCL) v. 1.3.1
- Isotherm® – Forced Convection Oven (OFA) v. 1
- Isotherm® – Forced Convection Incubator (IFA) v. 1
- Isotherm® – Low Temperature BOD Incubator (IFC) v. 1





## Intelligent Remote Monitoring Application Protocol

### iRMAP™

#### Introduction

Intelligent Remote Monitoring Applications Protocol (iRMAP™) is a fee-based service that Esco can provide for any users of Esco freezers. A user purchases Voyager®, installs it on a PC, and connects it up to their freezer network. The monitoring data is encrypted and transmitted to an Esco server. Esco will have a call center staff to monitor the freezers/cabinets 24 hours a day, 7 days a week for any global customer. In the event that your samples are at risk, the iRMAP™ monitoring team will notify the customer until situation is resolved.

The iRMAP™, in conjunction with the Preventive Failure Monitoring System can also monitor the health of your Esco freezer and proactively dispatch service to correct pending and future freezer issues that could threaten customer samples.

#### Features

- 24/7 customer care monitoring features
- Dedicated Esco technical support representative
- Users can access Voyager® data logs anytime and at any location using web browser applications
- Customer can access and acknowledge alarms and data using apps for iOS mobile devices
- Monitoring data is encrypted and transmitted to a secured server



**perichief@perichief**

Temperature: **-76.7°C**  
Minimum Value: (Minimum Value)

Buttons: [Home Log](#) [Event Log](#) [All Sensors Log](#)

Unit ID	Unit Name	Unit Type	Unit Status	Unit Temp	Unit Humidity	Unit Pressure	Unit Vibration	Unit Power	Unit Alarm	Unit Error	Unit Reset
01-01-001	01-01-001	01-01-001	01-01-001	01-01-001	01-01-001	01-01-001	01-01-001	01-01-001	01-01-001	01-01-001	01-01-001
01-01-002	01-01-002	01-01-002	01-01-002	01-01-002	01-01-002	01-01-002	01-01-002	01-01-002	01-01-002	01-01-002	01-01-002
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01-01-010	01-01-010	01-01-010	01-01-010	01-01-010	01-01-010	01-01-010	01-01-010	01-01-010	01-01-010	01-01-010	01-01-010



## Life Science | Sample Protection

### Wireless Monitoring System

## PROtect

### Introduction

Esco PROtect monitoring system includes radio frequency recorders which can be connected to any brands of freezer, cold storage system and temperature controlled equipment. These recorders automatically send data to a central server to monitor temperature and other parameters and send real-time alert to users in case of severe failure.

Esco PROtect complies with quality assurance procedures:

ISO 17025 and ISO 15189 norm, GMP and audit trail traceability for conformance to 21 CFR Part 11

### Features

#### A. Real Time Monitoring System

- Wireless Technology that protects your samples 24/7 with continuous data logging function and immediate alarm notifications
- Centralize monitoring for all your equipment (any brands and any models):
  - Temperature for refrigerators, freezers, cold chambers, cryogenic tanks and -80°C freezers
  - Temperature and CO<sub>2</sub> for ovens/incubators
  - Temperature and humidity for climatic chamber, ambient area
- Measurement and recording of physical parameters such as temperature, CO<sub>2</sub> and humidity
- Direct reading on the display
- As compared to Wi-Fi, radio frequency has longer battery life and transmission distance
- In using the radio frequency, repeaters can be installed to extend the distance which cannot be easily done by some Wi-Fi system

#### B. Simple and Cost Effective

- Fast Installation, commissioning and maintenance
- Can centrally monitor integrity of samples even during a power outage or electronic failure of refrigerator, freezer, incubator, oven, etc.
- Accurate and efficient compared to manual data readings
- Reduce labor cost for manual data readings since manual data readings are less accurate, less reliable and time consuming. This saves you time and money
- Readily accessible through the display or monitoring software thru PC
- Multi-site installation
- Interchangeable digital probes with embedded memory to facilitate maintenance procedures
- Modern and eco-friendly

#### C. Traceability and Security – Quality Assurance

- Local regulations or recommendations within Quality Management Programs

### System Requirements

- PROtect Server
  - Computer Architecture: 32 bit and 64 bit
  - OS: Windows 2000, XP, Vista, Win 7 and Windows 2003-2008 Server
  - RAM: 3 GB (minimum)
  - HD: 250 GB capacity or higher
  - Video Card: VGA compatible 1280 X 1024 32 bit (minimum)
  - Windows Installer 3.1 (included)
- PROtect Client
  - Computer Architecture: 32 bit and 64 bit
  - OS: Windows 2000, XP, Vista, Win 7 and Windows 2003-2008 Server
  - RAM: 2 GB (minimum)
  - HD: 1 GB capacity or higher
  - Video Card: VGA compatible 1280 X 1024 32 bit (minimum)





## Ductless Fume Hoods



Ascent® Opti Ductless Fume Hoods

Ascent® Max Ductless Fume Hoods

Powder Weighing Enclosures



### Introduction

The Esco Ductless Fume Hoods 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

- Ductless Fume Hoods  
\*Brand Available: Ascent® Opti
- Standard Ductless Fume Hoods  
\*Brand Available: Ascent® Max (B-Series)
- Ductless Fume Hoods - With Secondary Back Up Carbon Exhaust Filter  
\*Brand Available: Ascent® Max (C-Series)
- Ductless Fume Hoods - With Transparent Back Wall  
\*Brand Available: Ascent® Max (D-Series)
- Ductless Fume Hoods - With Secondary HEPA Filter  
\*Brand Available: Ascent® Max (E-Series)
- Powder Weighing Balance Enclosure  
\*Brand Available: PowderMax™



## Laboratory Fume Hoods



General Purpose



Floor Mounted



Acid Digestion Applications



Radioactive Materials



Trace Metal Applications



Perchloric Acid Applications



Mining Industry Applications



### 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
- ISOCIDE™ antimicrobial coating prevents surface contamination and inhibits bacterial growth

### Product Lines

- General Purpose Benchtop Hoods  
\* Brands Available: Frontier® Acela , Frontier® Duo , Frontier® Mono , Frontier® Junior
- Fume Hoods – Mining Industry Applications  
\* Brand Available: Frontier® Acela M Series
- Fume Hoods – Acid Digestion Applications  
\* Brand Available: Frontier® Acid Digestion
- Fume Hoods – Perchloric Acid Applications  
\* Brand Available: Frontier® Perchloric

- Fume Hoods – Radioactive Materials  
\* Brand Available: Frontier® Radioisotope

- Fume Hoods – Trace Metal Applications  
\* Brand Available: Frontier® PPH

- Floor Mounted Fume Hoods  
\* Brand Available: Frontier® Floor Mounted

- Chemical Fume Scrubbers

- Exhaust Blowers

- Fume Hood Airflow Monitors  
\* Brand Available: Sentinel™ XL

### Certifications

ASHRAE 110



EN 14175

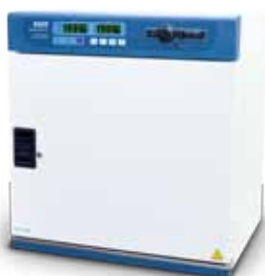


UL classified



## Laboratory Thermostatic Products

### Laboratory Ovens



### Laboratory Incubators



### Refrigerated Incubators



#### Introduction

The Esco world class laboratory ovens and incubators with technologies and compliance to prove it. Ergonomic, intuitive interfaces, microprocessor PID controller with programming options, precisely tuned and tested ventilation and insulation package, all supported by Esco's solutions-based sales and service representatives worldwide.

#### Features

- Wide range of programming options
- Multiple over-temperature protection systems guarantee maximum sample and user protection
- Access port for temperature validation and mapping

#### For Forced Convection Ovens, Incubators and Refrigerated Incubators

- Solaris™ Pre-Heat Chamber Technology
- Forced convection design provides faster temperature response rates, improved uniformity, and reduced fluctuation
- Fan speed and air exchange rates are adjustable
- Ergonomic door handle with keylock

#### For Natural Convection Incubators

- Natural convection design best suits for gentle ventilated incubation requirement
- Ergonomic door handle

#### Product Lines

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

\*Brand Available: Isotherm®





## Sample Stability Testing

### Constant Climate Chamber



#### Introduction

Esco Avona® Constant Climate Chamber is the best solution for Pharmaceutical Stability Testing. With its cutting-edge temperature and humidity control technologies, diversity options, intuitive interface and robust design, and its compliance with ICH, FDA and GMP guidelines, it is guaranteed that Esco constant climate chamber delivers excellent and reliable performance.

#### Features

- Optimized airflow with PT – 100 thermal sensor ensures best temperature uniformity.
- Automatic humidification and dehumidification system with drift-free sensor provides optimal humidity precision.
- 7-inch high resolution, user-friendly touchscreen controller shows every parameter clearly with wide range of program options for automated ramping and start/stop.
- Comprehensive protection provides absolute safety; Redundant over-temperature, over-humidity protection, independent of microprocessor control.
- Visible and audible alarm alert for any undesired condition.
- Flexible interchangeable illumination system offers homogeneous lighting conditions over the entire usable area.
- External surfaces are powder coated with ISOCIDE™ to eliminate 99.9% of surface bacteria within 24 hours of exposure.
- Perforated stainless steel shelving improves uniformity.
- RS485 communication port for PC, Voyager® PC remote control kit, Analog output for independent recorder; USB port for flash disk record.
- Complies with FDA 21 CFR, Part 11.

#### Product Lines

- Constant Climate Chamber

\*Brand Available: Esco Avona®

## Pharmaceutical Equipment

### Airflow Containment



### Isolation Containment



### Cross Contamination Facility Integrated Barriers



### Barrier Isolation System



#### Introduction

Esco Pharma's 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 in the growth of 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 Pharma containment booths have the world's largest number of pre-designed building blocks providing up to 420 different sizes and 3.5 million optional combinations. Our booths cater for all industries from Pharma, to F&B, FMCG, Textiles, Fine Chemicals/Paints, Electronics, Life Science, Animal Facilities.

Our containment Isolators WDCI have inbuilt software and hardware options allow *In situ* customization with inbuilt CIP/WIP Ports, Inert Environmental Controls.

Our Aseptic Containment Isolators ACTI and GPPI are pre-designed with user adjusted settings, allow various combinations of positive pressure, negative pressure, re-circulatory or single pass modes to be selected *In situ* all with safe change return and supply filters, providing the highest level of flexibility adapting to various client applications.

Esco Barrier Isolation Systems provide inherently superior sterility compared to open front clean air devices such as laminar flow clean benches and Class II biological safety cabinets. USP797 guidelines specify that isolators may be situated in an area subject to less severe environmental controls compared with open front clean air devices.

#### Airflow Containment Products

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

#### Isolation Containment

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

#### Cross Contamination Facility Integrated Barriers

- Cleanroom Air Showers
- Air Shower Pass Box
- Cleanroom Transfer Hatch
- Pass Boxes
- Soft Wall Cleanroom
- Dynamic Passboxes and Dynamic Floor Label Hatches

#### Barrier Isolation System

- Pharmacy Compounding Aseptic Containment Isolator (Recirculating)
- Pharmacy Compounding Aseptic Isolator
- Cytotoxic Safety Cabinets



## Assisted Reproductive Technology (ART) Equipment

### Embryo Incubators



### IVF Workstation



### IVF Accessories



### Introduction

Esco Medical is one of the divisions of the Esco Group of companies, the other two being the laboratory and pharmaceutical equipment divisions. Esco is now targeting innovative technological solutions for fertility clinics and laboratories. Esco Medical is positioned to become a leading manufacturer and innovator of high quality equipment such as Time-Lapse Incubator, Benchtop Multi-room Embryo Incubators, IVF Workstation, CO<sub>2</sub> Incubator, Anti-Vibration Table, and Gas Analyser. Most of our medical products are designed in Denmark and made in the EU.

### Time-Lapse Embryo Incubator

Miri® TL is a Time-Lapse embryo incubator that monitors embryo development. The Esco Miri® TL, optimized for clinical and IVF procedures, is designed to support existing work and quality assurance routines. This value-added treatment provides the most unique incubation environment with the market's most secure and safest procedures.

### Benchtop Multi-room Embryo Incubator

The Miri® is a revolution in form and functionality of 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 neighbouring chambers.

### In Vitro Fertilization (IVF) Workstation

The Fertilisafe™ IVF Workstation is the most advanced workstation in its class. It is designed for use in applications that require a high level of control over environmental conditions. Applications can range from animal embryo culture in research to human embryo manipulation done in fertility laboratories.

### Anti-Vibration Table

The Esco Anti-Vibration Table (AVT) features an anti-vibration mechanism for passive dampening of the microscope. This is mainly used for *In vitro* Fertilization (IVF) or Intra-Cytoplasmic Sperm Injection (ICSI) procedures.

### CO<sub>2</sub>/O<sub>2</sub> Gas and Temperature Validation Unit

The Esco Miri® GA is a desktop CO<sub>2</sub>/O<sub>2</sub> temperature validation unit. Connected to a PC, the logging software will document parameters and optionally send e-mail alarms if set up. The Esco Miri® Gas Analyser contains high precision quality components, which are chosen to ensure high durability and performance of the connecting equipment.

## 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 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.

### 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.

### NSF International Accreditations

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.

In line with Esco's commitment in providing world class services worldwide, Esco has a large contingent of NSF accredited certifiers which makes Esco not only an Excellent Standards Company but also an Excellent Service Company, which exemplifies Esco's collective quest of being an Eternally Successful Company.

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.

### References and Links

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

Whatever your needs are,  
**we serve it to you  
in a silver platter.**





WORLD CLASS. WORLDWIDE.

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