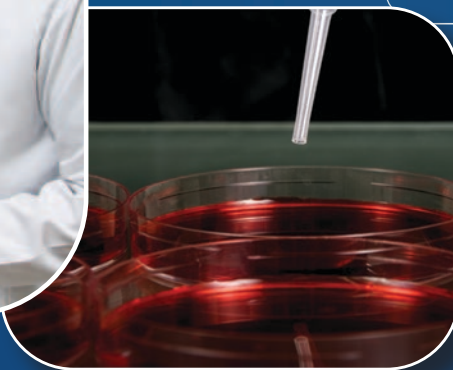




CelMate® CO₂ Incubators

CelMate®

CO₂ Incubators
Cradle for Beautiful Cells





Welcome to Esco Lifesciences

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

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

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

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

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

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

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

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

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



Products and Applications

Life Sciences Laboratory Equipment

Sample Preparation

- Class I Biological Safety Cabinets
- Class II Biological Safety Cabinets
- Class II Type A2 Biological Safety Cabinets
- Class II Type B1 Biological Safety Cabinets
- Class II Type B2 Biological Safety Cabinets
- Class III Biological Safety Cabinets
- Horizontal Laminar Flow Cabinets
- Vertical Laminar Flow Cabinets
- Laboratory Animal Research Workstations
- Laboratory Centrifuges

Sample Cultivation

- CO₂ Incubators, Direct Heat Air-Jacketed
- CO₂ Incubators with Cooling System
- CO₂ Incubators with High Heat Sterilization
- Laboratory Shakers

Amplification and Detection

- Conventional Thermal Cyclers
- Microplate Shakers
- PCR Cabinets

Sample Storage & Sample Protection Solutions

- Laboratory Refrigerators and Freezers
- Ultra-low Temperature Freezers
- Remote Monitoring, Datalogging, and Programming Software
- Wireless Monitoring System

Chemical Research

- Ducted Fume Hoods
- Ductless Fume Hoods
- Filtered Storage Cabinets
- Powder Weighing Balance Enclosure
- Exhaust Blowers
- Fume Hood Airflow Monitor

General Equipment

Laboratory Thermostatic Products

- Forced Convection Laboratory Oven
- Forced Convection Laboratory Incubator
- Natural Convection Laboratory Incubator
- Refrigerated Laboratory Incubator

Medical / IVF Equipment

Innovative Time-Lapse Imaging

- MIRI® TL6 and MIRI® TL12

Embryo Culture

- MIRI® Multiroom Incubator
- MIRI® Humidity Multiroom Incubator
- Mini MIRI® Dry and Humidity Incubator
- CelCulture® CO₂ Incubator
- MIRI® II-12 Multiroom Incubator

Sample Handling

- Esco Multi-Zone ART Workstation
- MIRI® AVT
- Versati™ Tabletop Centrifuge
- Airstream® Laminar Flow Bench

Accurate Quality Control

- MIRI® GA Gas and Temperature Validation Unit

Unique Consumables

- CultureCoin®

Traceability Tool

- MIRI® Evidence

Healthcare

Esco Pharma Products

Airflow Containment

- BioBooth®
- Ceiling Laminar Airflow (CLAF)
- Cytoculture® Cytotoxic Safety Cabinet (CYT)
- Pharmacon™ Downflow Booth
- Esco Garment Storage Cabinet
- Esco Glassware Hoods
- Laminar Flow Horizontal/Vertical Trolley (LFH/VT)
- Laminar Flow Straddle Units
- Evidence Drying Cabinet

Isolation Containment

- Advanced Processing Platform Isolator (APPI)
- Aseptic Containment Isolator (ACTI)
- Blood Cell Labelling Isolator
- Streamline® Closed Restricted Access Barrier System (SLC-RABS)
- Containment Barrier Isolator (CBI)
 - CBI-Unidirectional (CBI-U)
 - CBI-Turbulent (CBI-T)
 - CBI-Class III Biosafety Cabinet (CBI-III)
 - CBI-Hybrid (CBI-H)
- Isoclean® Healthcare Platform Isolator (HPI)
 - HPI-G3-Without Filter Below Work Zone
 - HPI-G3-With Filter Below Work Zone
 - HPI-Inflatable Seal (HPI-IS)
 - HPI - Inflatable Seal - BioVap™ (HPI-IS-BVP)
- General Processing Platform Isolator (GPPI)
 - GPPI-Inflatable Seal (GPPI-IS)
 - GPPI-Static Seal (GPPI-SS)
- Streamline® Compounding Isolator (SCI)
- Streamline® Containment Isolator - Class III (SCI-III)
- Technetium Dispensing Isolator
- Turbulent Flow Aseptic Isolator™ (TFAI™)
- Weighing and Dispensing Containment Isolator (WDCI)

Cross Contamination Facility Integrated Barrier

- BioPass™ Pass Through
- Cleanroom Air Showers
- Dynamic Pass Boxes/ Dynamic Floor Laminar Hatches
- Infinity® Air Shower Pass Box
- Esco Sputum Booth
- Infinity® Pass Boxes
- Infinity® Cleanroom Transfer Hatch
- Soft Capsule® Soft Wall Cleanroom

Ventilation Containment

- Ventilated Balance Enclosure

Esco VacciXcell Products

Tide Motion Bioreactors

- CelXrocker™ (CXR)
- MiniTide®
- CelCradle™ (CC)
- CelCradle X® (CCX)
- TideXcell® (TXL)

Stirred Tank Bioreactors

- BioXcell®
- StirCradle™
- StirCradle™ PRO
- VXL™ Hybrid

Harvesting System

- CelShaker™
- CelCradle X® Semi-automated Harvester System (CCX-SAH)
- TideXcell® Harvester System (TXLHS)

Cell Culture Monitoring, Media and Consumables

- Super Plus™
- Plus™ Vero
- Plus™ MDCK
- Plus™ MDCK II
- BioNOC™ II macrocarriers
- GlucCell™ Glucose Monitoring System
- CVD Kit

Filling Line Equipment

- Traditional Filling Line
- cRABS (Closed Restricted Access Barrier System)
- oRABS (Open Restricted Access Barrier System)

Integrated Solutions

- Cell Processing Isolator (CPI)
- Cell Processing Center

Esco TaPestle Rx Products and Services

Pharmacy Automation and Compounding Supply

- Compounding Pharmacy Isolators (SCI, HPI, CBI, GPPI)
- Safety Cabinets and Enclosures (CYT, Class II BSC, VBE, LFC)
- Filling Line Isolators/RABS

Radiopharmacy Equipment

- Blood Cell Labeling Isolator
- Cytoculture® Lead-Shielded Class II Biosafety Cabinet
- Frontier® Radioisotope™ Fume Hood
- GMP-compliant Radioisotope Dispensing Isolator
- Radiopharmacy Hood (Lead Shielded Biological Safety Cabinet)
- Technetium Dispensing Isolator



CelMate®

CO₂ Incubators

INTRODUCTION

Esco now offers the new CelMate®, 50 L, 170 L, and 240 L, entry-level cell culture CO₂ incubator with superb contamination control. It is specifically designed for laboratories looking for a cost-effective CO₂ incubator that can provide the best protection for their cell culture.

Sleek, reliable, and intuitive, Esco CelMate® CO₂ incubators provide all-rounded sample protection that brings your scientific dreams one step closer to reality.

KEY FEATURES

CelMate® CO₂ INCUBATORS

Cradle for Beautiful Cells



CelMate® CO₂ Incubators available in 50 L, 170 L, and 240 L



SHELVING

- Perforated shelving to improve uniformity
- Anti-tip
- Stainless steel
- Built-in grip
- Dismantles without tools for easy cleaning

DIRECT HEAT & AIR JACKET

- Fast and uniform heating
- Rapid temperature recovery without overshoot
- Air jacket improves chamber stability



DUCT WORK

- Directs air flow for rapid recovery and excellent uniformity
- Easily removed for cleaning



WATER PAN

- Precisely heated by base heater to provide high humidity
- Gentle airflow over water surface accelerates humidity recovery



ROUNDED CORNERS

- Seamless design
- Facilitates easier cleaning

ULPA FILTER

- 99.999% efficient, superior to conventional HEPA filters
- Filters air continuously
- Chamber returns to ISO Class 5 cleanliness in 11 minutes upon door closing to prevent contamination



CO₂ SENSOR

- Heat-resistant IR sensor
- Single-beam, dual-wavelength IR sensor is drift-free

DOOR SWITCH

Automatically turns off the blower, heater, UV, and gas supply when the door is opened

TOP COVER

Provides quick access to electrical panel components

SMARTSENSE™ MICROCONTROLLER INTERFACE

Intuitive, fully equipped control and monitoring system

BLOWER*

Gentle airflow in chamber improves recovery and uniformity

**Not available in 50 L Model (including top, back, and bottom plenum)*

OUTER DOOR

- Reversible
- Heated to prevent condensation

SAMPLE PORT

Allows direct measurement of chamber atmosphere such as CO₂ and O₂ concentration

INNER GLASS DOOR

For observing sample cells inside the chamber during operation

DOOR LATCH

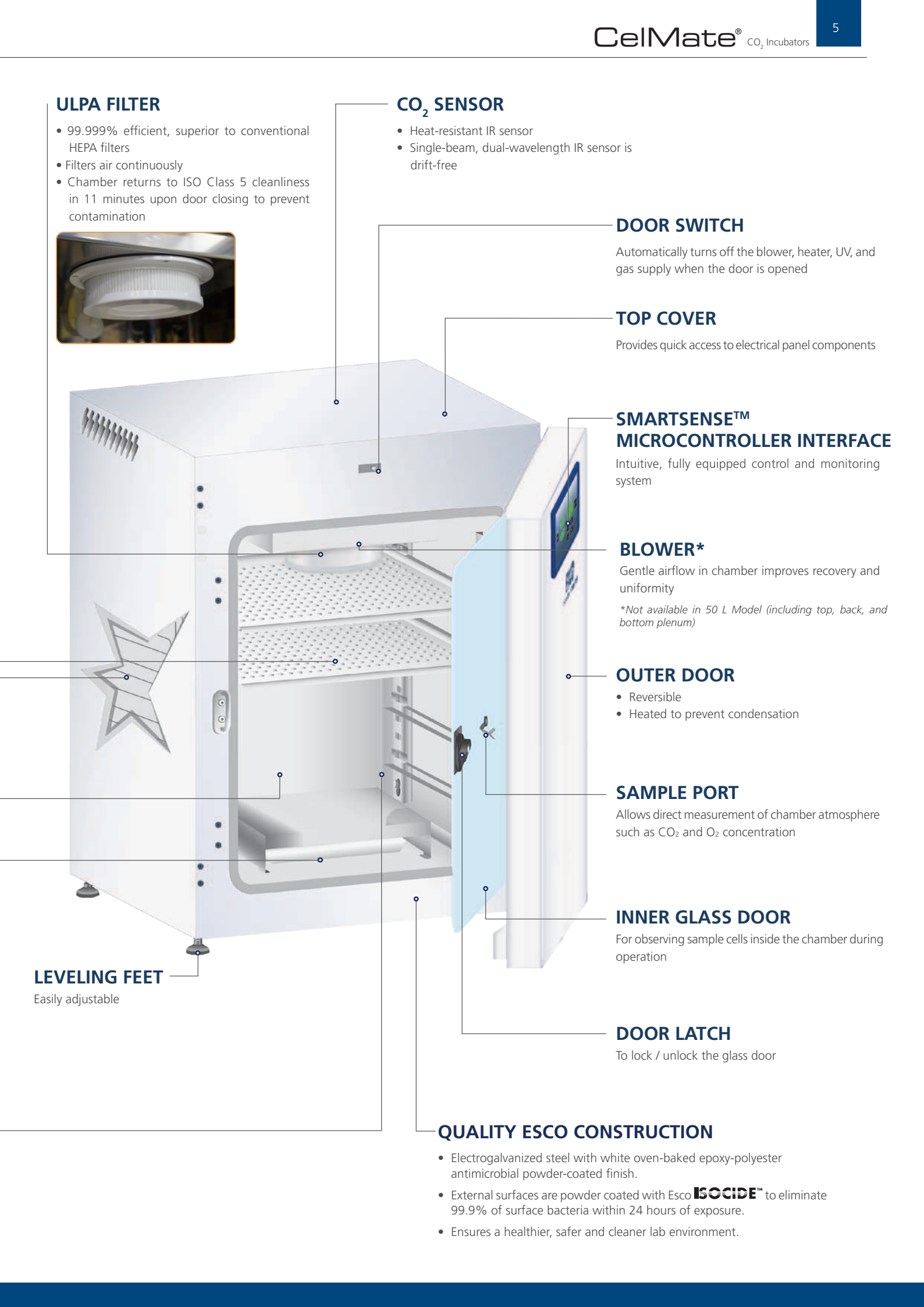
To lock / unlock the glass door

LEVELING FEET

Easily adjustable

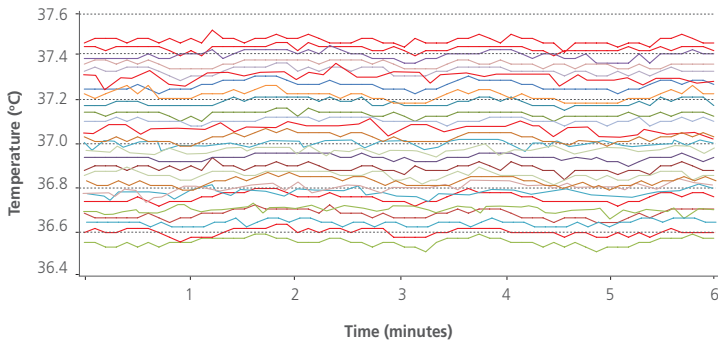
QUALITY ESCO CONSTRUCTION

- Electrogalvanized steel with white oven-baked epoxy-polyester antimicrobial powder-coated finish.
- External surfaces are powder coated with Esco **ISOCIDE™** to eliminate 99.9% of surface bacteria within 24 hours of exposure.
- Ensures a healthier, safer and cleaner lab environment.

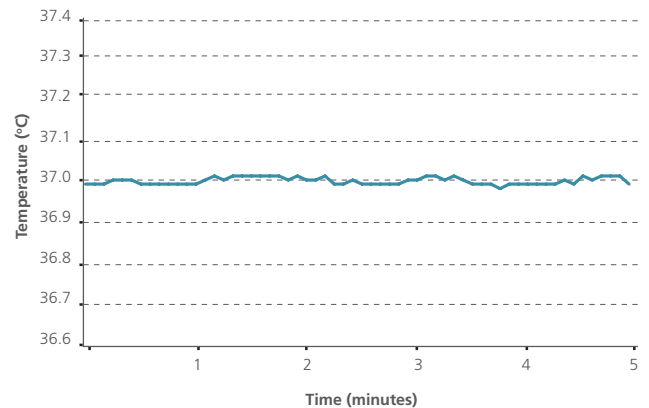


VIVOCELL™ PRECISE PARAMETER CONTROL

BEST UNIFORMITY AND CONTROL AMONG THE COMPETITION

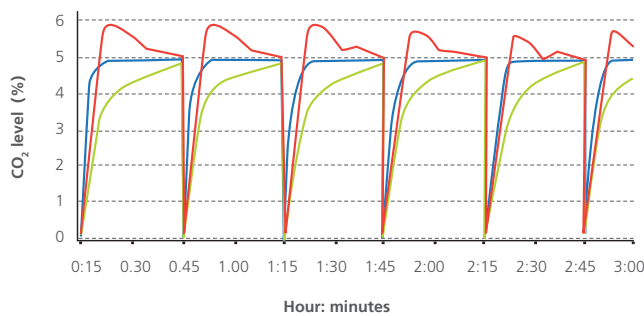


Different lines represent different sensor positions inside the chamber. Esco CelMate® has uniformity variance of less than ± 0.5 °C which means all the samples are evenly heated.*



Minimal fluctuation (± 0.2 °C) ensures temperature stability.*

FAST CO₂, TEMPERATURE AND HUMIDITY RECOVERY WITHOUT OVERTHOOT

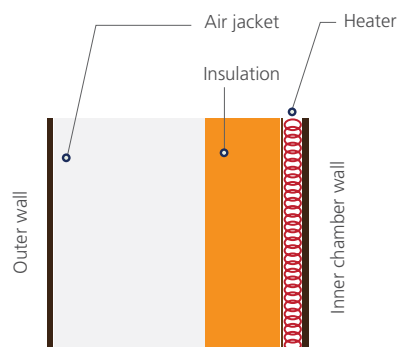
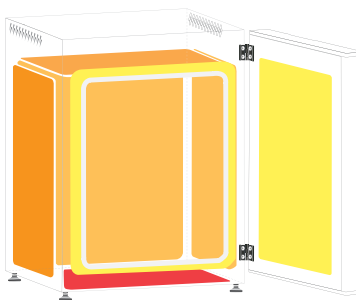


Precisely-tuned sensor and software result in fast recovery of CO₂ without overshoot. This ensures uniform CO₂ levels even with frequent incubator door openings.

Recovery of both temperature and humidity is twice as fast as conventional incubators.

- Company A's model: overshoot.
- Company B's model: slow recovery.
- Esco CelMate®: fast recovery, no overshoot.

DIRECT HEAT AND AIR JACKET

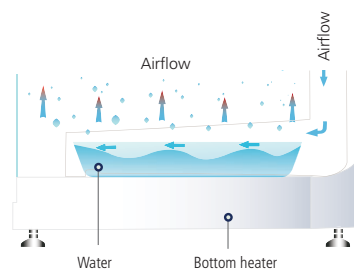
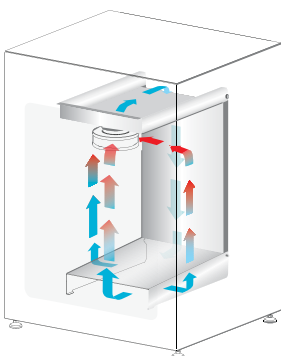


- Direct heating enables rapid temperature recovery while air jacket provides isolation against ambient temperature fluctuations.
- Precise heating in the chamber is achieved by using 8 heaters located in 3 zones. The 3 zones are intelligently controlled by the microcontroller for best temperature uniformity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

Note: For CLM-050B- models, heaters are located in 4 zones (main, bottom, outer door, and back).

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

VENTIFLOW™ FORCED CONVECTION

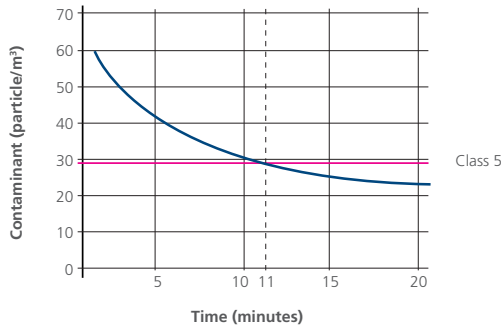


- No disturbance to cell culture.
- Blower automatically stops when door is opened to minimize mixing of chamber and room air.
- Accelerates recovery of chamber air to ISO Class 5 Cleanliness after door closing to prevent contamination.
- Improves CO₂, humidity and temperature uniformity.
- Filtered air circulates across water pan to accelerate humidifying process.

**Units were factory-tested under controlled environmental conditions per DIN 12880 standard and Esco method. Esco does not guarantee identical results in the field under differing conditions. Original report available upon request. Model used in the test is CLM-170B-8.*

ROBUST CONTAMINATION CONTROL

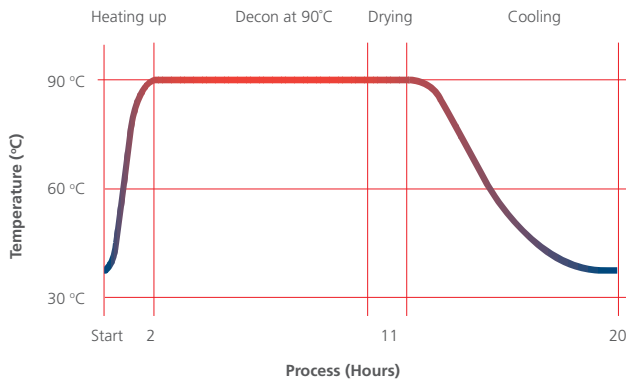
STERISAFE™ ULPA FILTRATION SYSTEM



- Chamber air is continuously filtered by ULPA filters to keep the chamber at ISO Class 5 cleanliness. This ensures that all contaminants from both room air and chamber air are filtered, thus only clean air is recirculated.
- ULPA filters operate at 99.999% efficiency, superior to conventional HEPA filters which are 99.99% efficient.
- Chamber achieves ISO Class 5 cleanliness 11 minutes after door closing.*

*Units were factory-tested under controlled environmental conditions per DIN 12880 standard and Esco method. Esco does not guarantee identical results in the field under differing conditions. Original report available upon request. Model used in the test is CLM-170B-8.

VALIDATED SWIFTCON™ OVERNIGHT DECONTAMINATION CYCLE



Microorganisms	Before Decon	After Decon
<i>Bacillus atrophaeus</i>	1.59 x 10 ⁶	0
<i>Aspergillus brasiliensis</i>	1.52 x 10 ⁴	0
<i>Pseudomonas aeruginosa</i>	2.38 x 10 ⁶	0
<i>Staphylococcus epidermis</i>	2.33 x 10 ⁶	0
<i>Escherichia coli</i>	1.57 x 10 ⁶	0
<i>Staphylococcus aureus</i>	5.72 x 10 ⁶	0
<i>Enterobacter faecalis</i>	2.15 x 10 ⁶	0

- The automated SwiftCon™ 90°C moist heat decontamination cycle has been proven effective in deactivating normally resistant fungi, bacterial spores and vegetative cells by the Health Protection Agency (HPA) in UK.
- Full decontamination cycle completes within 20 hours.
- Independently proven to be as effective as high temperature decontamination.
- Lower temperature causes less damage to electronic components, therefore prolongs the life span of the incubator.

GAS INJECTION LINES ARE FILTERED



- All gas injection lines are filtered via 0.2 micron inlet filters to remove impurities and contaminants before being injected into the chamber.
- Inlet filters are field-replaceable and are located external to the incubator.

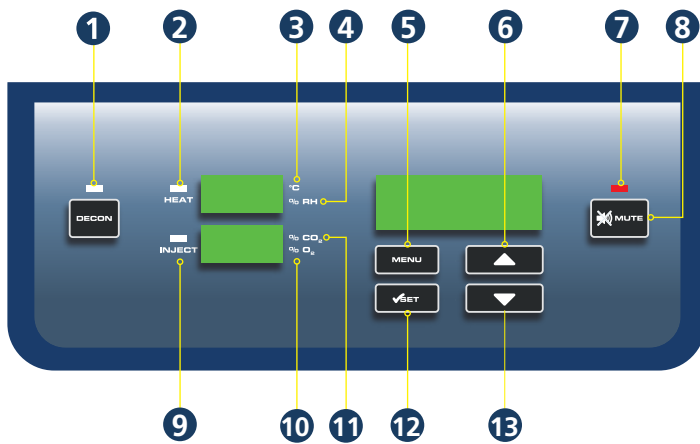
EFFICIENT ENERGY USE



- Built to run optimally in ambient+5 temperature — Meaning less air-con and energy consumption, thus saving electricity bills without compromising the cell cultures.

CONTROLLER TYPE

USER - FRIENDLY SOFTWARE INTERFACE



1. **Start / stop decontamination cycle**
2. **HEAT LED**
Lights up when heat is applied to chamber
3. **°C is lit when displaying the temperature**
4. **% RH is lit when displaying the humidity level**
5. **Enter menu / go back to previous menu**
6. **Scroll up / increase value**
7. **ALARMS LED**
Will blink when errors and warnings occur
8. **Mute alarms**
9. **INJECT LED**
Lights up when gas is injected
10. **% O₂ is lit when displaying the O₂ concentration**
(not applicable to CelMate®)
11. **% CO₂ is lit when displaying the CO₂ concentration**
12. **Confirm value / enter a menu**
13. **Scroll down / decrease value**

• Comprehensive, user-configurable alarms:

- Temperature
- CO₂
- Humidity (if installed)

• CelAlert™ alarm system reminds user to replace parts.

```
NEW CO2 TANK
CO2 TANK NET WEIGHT
IN KG: 0031
NEW CO2 TANK IS SET
```

In addition to CO₂ tank low alarm, CelAlert™ has CO₂ tank depletion reminder that automatically calculates how much CO₂ gas is left in the tank and alerts user to replace the tank one week before the gas is depleted. This gives the user some buffer time to place orders for new tanks.

```
SET ULPA REMINDER
ULPA REMINDER
TIME <MONTHS> :12
REMINDER IS SET
```

ULPA reminder will alert user to replace ULPA filter.

• Intelligent data and event logger records all incubator parameters for on-screen recall. A 2 MB built-in flash memory guarantees long-term storage of data.

```
MAIN MENU
CALIBRATION
ADMIN
>DATALOGGING
```

```
DATALOGGING
>SHOW TEMP DATA LOG
SHOW %CO2 DATA LOG
DATA LOG PERIOD
```

```
012016 0724 36.8°C
012016 0719 37.0°C
012016 0714 37.1°C
012016 0709 37.3°C
```

• Diagnostic interface and online quick help provide comprehensive solutions to frequently encountered problems.

• New Safety Alarm System

- Temperature Fail-Safe System prevents overshooting of temperature display to +0.4°C of the set point.
- The Auto-Reset Watchdog will automatically reset the system in the unlikely event of system failure, preventing the controller from freezing.
- %CO₂ Failure Mode prevents build-up of %CO₂ over set point in cases of CO₂ sensor defect.



Voyager

Remote Monitoring, Datalogging, Programming Software

Esco Voyager is a PC-based software package developed for the remote monitoring, datalogging, and programming / device configuration of Esco thermostatic products.

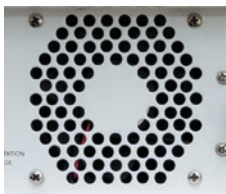
A centralized monitoring and control system for the laboratory, Esco Voyager provides extra protection for you and your samples.

Voyager interfaces with individual Esco equipment over RS485 using the EscoBUS communications protocol. Multiple equipment may be interfaced to a single PC.

Compatible Equipment

- CelCulture® - CO₂ Incubator (CCL)
- CelMate® - CO₂ Incubator (CLM)
- Lexicon® - Ultra-low Temperature Freezer
- Isotherm® - Forced Convection Oven (OFA)
- Isotherm® - Forced Convection Incubator (IFA)
- Isotherm® - Refrigerated Incubator (IFC)
- Isotherm® - Natural Convection Incubator (INA)

REAR PANEL



1 Cooling Fan
Prevents the electrical panel from overheating.



5 Alarm Contact
A set of relay contacts located on the rear panel of the unit is provided to monitor temperature, humidity, CO₂ alarms. These can be connected to a remote alarm system.



2 Power Supply Inlet
Connects the incubator unit to the power source.



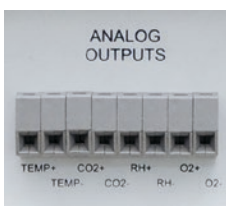
6 CO₂ Gas Supply Inlet
Connects the CO₂ gas supply to the incubator. Inlet pressure requirement is 15 psi.



3 RS485 Communication Port
Provides serial communication port for PC. It can be daisy-chained from one product to another and can also be connected to a PC



7 Gas Inlet Filter
Provided to remove any contaminants from the gas supply.



4 Analog Port (Optional)
Allows the incubator to output analog signals representing temperature, CO₂/O₂ concentration and relative humidity, depending on the options available in the incubator. This allows the incubator to be connected to an in-house data acquisition or alarm system.



8 Access Port
Allows cables, hoses or additional sensors to be routed into the work space. A rubber stopper with controlled leak is installed as standard configuration and is part of standard accessories.

ORDERING INFORMATION

IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER

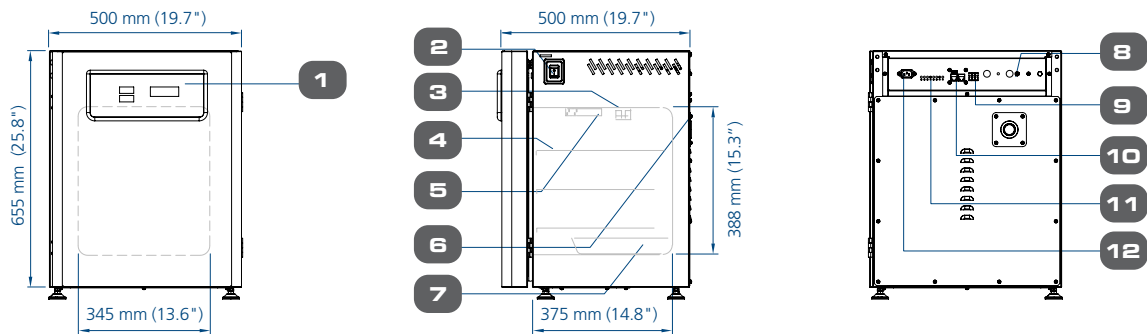
MODELS	ITEM CODE	DESCRIPTION
CLM-050B-8	2170269	CelMate® Incubator 50 L, IR Sensor, CO ₂ Control, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump)
CLM-050B-9	2170345	CelMate® Incubator 50 L, IR Sensor, CO ₂ Control, Moist Heat Decon, 115 VAC, 50/60 Hz (Without Decon Pump)
CLM-170B-8	2170106	CelMate® Incubator 170 L, IR Sensor, CO ₂ Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump)
CLM-170B-9	2170250	CelMate® Incubator 170 L, IR Sensor, CO ₂ Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz (Without Decon Pump)
CLM-240B-8	2170107	CelMate® Incubator 240 L, IR Sensor, CO ₂ Control, ULPA, Moist Heat Decon, 230 VAC, 50/60 Hz (Without Decon Pump)
CLM-240B-9	2170251	CelMate® Incubator 240 L, IR Sensor, CO ₂ Control, ULPA, Moist Heat Decon, 115 VAC, 50/60 Hz (Without Decon Pump)

IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER AND UV LAMP

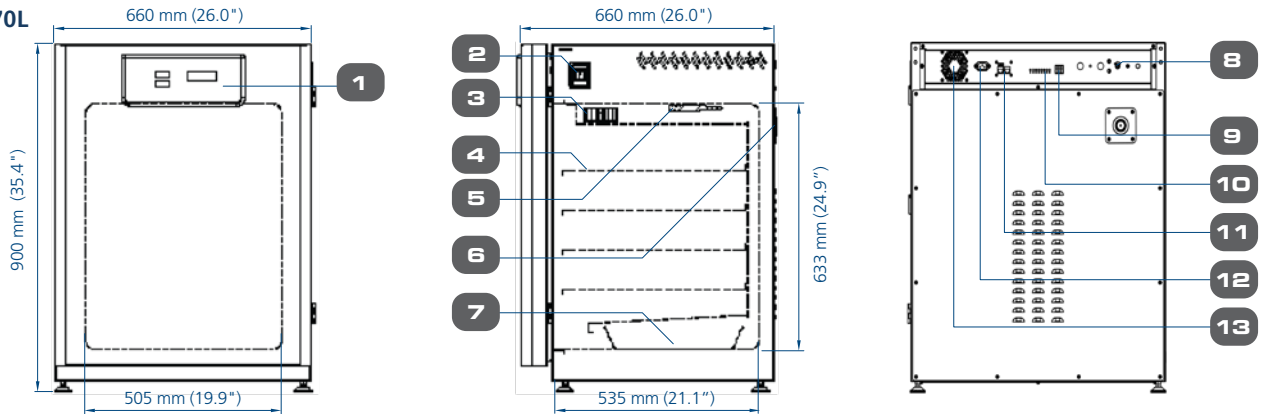
MODELS	ITEM CODE	DESCRIPTION
CLM-170B-8-UV	2170252	CelMate® Incubator, 170L, IR sensor, CO ₂ control, Moist Heat Decon, UV, 230VAC, 50/60 Hz (Without Decon Pump)
CLM-240B-8-UV	2170254	CelMate® Incubator, 240L, IR sensor, CO ₂ control, Moist Heat Decon, UV, 230VAC, 50/60 Hz (Without Decon Pump)
CLM-170B-9-UV	2170253	CelMate® Incubator, 170L, IR sensor, CO ₂ control, Moist Heat Decon, UV, 115VAC, 50/60 Hz (Without Decon Pump)
CLM-240B-9-UV	2170255	CelMate® Incubator, 240L, IR sensor, CO ₂ control, Moist Heat Decon, UV, 115VAC, 50/60 Hz (Without Decon Pump)

ENGINEERING DRAWING

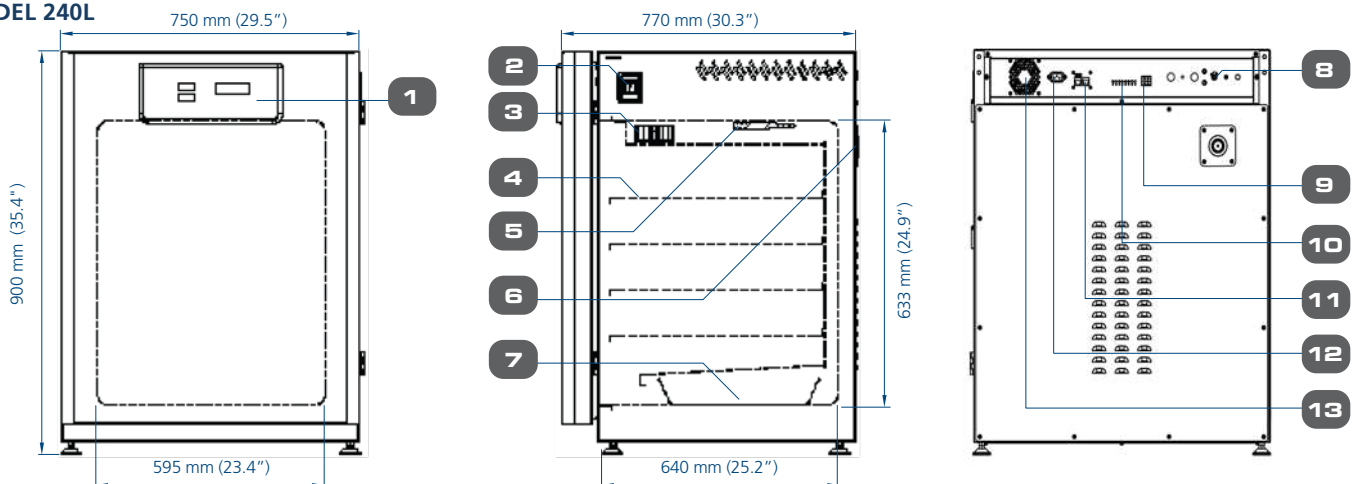
MODEL 50L



MODEL 170L



MODEL 240L



1. Control Panel
2. On / Off Switch
3. Small Fan (50L) / Blower (170L & 240L)
4. Adjustable Shelves
5. IR Sensor

6. Access Port
7. Humidity Pan
8. CO₂ Gas Supply
9. Alarm Contact
10. Analog Output

11. RS485
12. Power Supply Inlet
13. Cooling Fan

GENERAL SPECIFICATIONS

CELMATE® CO₂ INCUBATORS

	CLM-050B-	CLM-170B-	CLM-240B-	
TEMPERATURE				
Temperature Control Method	Direct Heat and Air Jacket using Microcontroller PI			
Ambient Temperature Range	18 to 32°C (64 to 89.6°F)			
Temperature Range, °C	Ambient +5 to 60			
Temperature Uniformity, °C*	< ±0.5			
Temperature Accuracy, °C*	<± 0.1			
Temperature Recovery Time** (after 30 seconds door opening, 98% from initial value)	≤5 minutes	≤5 minutes	≤6 minutes	
CO₂				
CO ₂ Control System	Microcontroller PI			
CO ₂ Range, % CO ₂	0-19.5			
CO ₂ Accuracy, % CO ₂ ***	±0.1			
CO ₂ Sensor	Infrared (IR) Sensor			
CO ₂ Recovery Time**** (after 30 seconds door opening, 98% from initial value)	≤6 minutes	≤5 minutes	≤6 minutes	
HUMIDITY				
Humidification Method	Humidity pan			
Humidity Range, %RH (at 37°C)*****	85-90			
PHYSICAL CONSTRUCTION				
Interior Volume	50 L (1.8 ft ³)	170 L (6 ft ³)	240 L (8.5 ft ³)	
External Dimensions (W x D x H)	500 x 500 x 655 mm (19.7" x 19.7" x 25.8")	660 x 660 x 900 mm (26.0" x 26.0" x 35.4")	750 x 770 x 900 mm (29.5" x 30.3" x 35.4")	
Internal Dimensions (W x D x H)	345 x 375 x 388 mm (13.6" x 14.8" x 15.3")	505 x 535 x 633 mm (19.9" x 21.1" x 24.9")	595 x 640 x 633 mm (23.4" x 25.2" x 24.9")	
Chamber Construction	Main Body	Electrogalvanized steel with Isocide™ antimicrobial coating		
	Interior Material	Stainless steel, type 304		
	Number of Shelves	3	4	4
	Maximum Number of Shelves	4	7	7
	Shelves Dimensions (W x D x H)	305 x 340 x 16 mm (12.0" x 13.39" x 0.63")	470 x 476 x 16 mm (18.5" x 18.75" x 0.63")	560 x 585 x 16 mm (22.0" x 23.9" x 0.63")
	Maximum Load per Shelf	4 kg/shelf (8.8 lbs/shelf)	11 kg/shelf (24.3 lbs/shelf)	15 kg/shelf (33.1 lbs/shelf)
Electrical Configuration 110-130 VAC, 50/60 Hz	Nominal Power at 37°C	40.9 W	42.2 W	42.2 W
	Maximum Power Consumption	675.5 W	1184.3 W	1727.9 W
	Full Load Amps	5.3 A	9.2 A	13.4 A
Electrical Configuration 220-240 VAC, 50/60 Hz	Nominal Power at 37°C	40.9 W	42.2 W	42.2 W
	Maximum Power Consumption	598.8 W	1008.9 W	1270 W
	Full Load Amps	2.5 A	4.2 A	6.5 A
Net Weight	52 kg (114.6 lbs)	101 kg (222.67 lbs.)	121 kg (266.76 lbs.)	
Shipping Weight	70 kg (154.3 lbs)	120 kg (264.6 lbs)	155 kg (341.7 lbs)	
Shipping Dimensions (W x D x H)	660 x 650 x 900 mm (26.0" x 25.6" x 35.4")	850 x 720 x 1120 mm (33.5" x 28.3" x 44.1")	850 x 850 x 1120 mm (33.5" x 33.5" x 44.1")	
Shipping Volume	0.39 m ³ (13.7 ft ³)	0.70 m ³ (24.85 ft ³)	0.79 m ³ (28.03 ft ³)	
CONTAMINATION CONTROL				
Contamination Control Methods	1) Main body is electro-galvanized steel with Isocide™ antimicrobial coating; 2) 90°C moist heat OVERNIGHT decontamination cycle (HPA validated); 3) ULPA filter***** 4) 0.2-micron inlet filter for gas inputs; 5) 1-micron air circulation filter 6) UV Lamp (for CLM-UV models only)			

All data recorded is specified for standard models with unloaded chambers and tested under optimum factory setting conditions of 23°C and 60% ambient humidity.

*Results are achieved when tested at 37°C as set point. Results may vary if set point changes and calibration is needed.

**For temperature not exceeding 37.2°C.

***Results are achieved when tested at 5% CO₂ as set point. Results may vary if set point changes and calibration is needed.

****For CO₂ level not exceeding 5.2%.

***** Esco does not guarantee condensation-free chamber at humidity level higher than 90%.

*****Not available for 50 L models.

OPTIONS AND ACCESSORIES



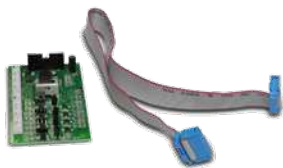
COA-1001 / COA-1001-F Humidity Display

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



COA-1002 / COA-1002-F CO₂ Backup

This option allows two tanks of CO₂ to be connected to the incubator. It will automatically switch from the primary tank to the secondary tank when low gas pressure is detected on the primary tank.



COA-1005 / COA-1005-F Analog Output

A set of relay contacts is provided at the rear of the incubator that allows the incubator to output analog signals representing the temperature, CO₂ / O₂ content and relative humidity, depending on the options available in your incubator. This allows the chamber to be connected to an in-house data acquisition or alarm system. This option can also be field-installed.

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



COA-2018-F (50L) / COA-2001-F (170 L) / COA-2019-F (240 L) Roller Base

Roller base is available with casters for mobility of your incubators and to provide protection against floor contamination.



COA-2020-F (50L) / COA-2002-F (170 L) / COA-2021-F (240 L) Floor Stand 200 mm (8.0") With Adjustable Feet

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



COA-2022-F (50L) / COA-2003-F (170 L) / COA-2023-F (240 L) Floor Stand 700 mm (27.6") With Casters

This support stand raises the incubator to a height of 700 mm (27.6") above the floor for comfortable access. It comes with casters for mobility of your incubators.



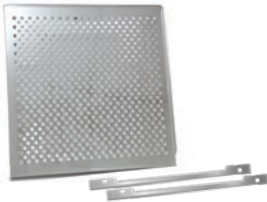
COA-2005-F 2-Stage Gas Regulator for CO₂

CO₂ and N₂ gas input regulators reduce pressure from the tank to the incubator. It has dual pressure gauges, barbed line connection and shut-off valve. It prevents over-pressurization of the gas supply into the incubator which could cause the tubing to burst.

- CGA 320 connector (U.S. Standard)
- BP-B5341-#8-NT4 connector (British Standard)

Note: Compatible with European DIN477, French NFE29-650 and Australia AS2473

- G5/8-RH connector (China Standard)



COA-2024-F (50L)/ COA-2007-F (170 L)/ COA-2025-F (240 L) Extra Shelf with Support Rails (Stainless Steel) for Standard Stainless Steel Chamber

Each CelMate® CO₂ incubator comes standard with 3 shelves for 50 L / 4 shelves for 170 L & 240L and it can accommodate up to a maximum of 4 shelves for 50 L / 7 shelves for 170 L & 240 L.



COA-2010-F Electronic CO₂ Analyzer, For CO₂ / Temp Measurement

COA-2016-F Electronic CO₂ + O₂ Analyzer, For CO₂ / O₂ / Temp Measurement

COA-2017-F Electronic CO₂ + O₂ + RH Analyzer, For CO₂ / O₂ / RH / Temp Measurement

The electronic analyzer allows the measurement of CO₂ concentration, O₂ concentration, relative humidity and temperature (temperature probe already included).



COA-2012-F 6" Chart Recorder, Temp, 115/230 VAC, 50/60 Hz

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



COA-2013-F 8" Chart Recorder, Temp/Temp, 115/230 VAC, 50/60 Hz

The chart recorder provides an easy-to-read graph of data vs time. It is a reliable, accurate, and stable instrument for on-the-spot written documentation of incubator chamber temperature. This model offers 8" chart of temperature data and comes with 2 remote probes for dual temperature monitoring.



COA-2014-F 6" Chart Recorder, Temp/RH, 115/230VAC 50/60 Hz

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



5250001 Voyager Software Kit

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 and incubators, low temperature incubators, CO₂ incubators, and ultra-low temperature freezers.



COA-2004 (170L) / COA-2042 (240L) 2-UNITS FLOOR STAND

This floor stand allows two units to be stacked without being physically in contact with each other. For the lower unit, it uses roller base for mobility and for easy pull out of the lower unit without the need to remove the upper unit in case of troubleshooting. Floor stand for upper unit also has casters for easy relocation.



COA-2011-F IQ / OQ DOCUMENTATION

The execution of the IQ / OQ verifies that the incubator is installed and is operating pursuant to the validated Standard Operating Procedures (SOPs).



PROtect Gen 2

Esco PROtect Generation 2 monitoring automatically send data to a central server to monitor temperature and other parameters and send real-time alerts to users. It complies with ISO 17025, GMP, and GLP requirements.

ORDERING INFORMATION

ACCESSORIES	ITEM CODE	DESCRIPTION
COA-1001	5170470	Humidity Display, Factory-installed
COA-1001-F	5170471	Humidity Display, Field-installed Kit
COA-1002	5170472	CO ₂ Backup (Tank Switcher), Factory-installed
COA-1002-F	5170473	CO ₂ Backup (Tank Switcher), Field-installed
COA-1004	5170474	Reversed Door Swing, Factory-installed
COA-1005	5170475	Analog Outputs, Factory-installed
COA-1005-F	5170476	Analog Outputs, Field-installed
COA-2018-F	5170419	Roller Base (50 L)
COA-2001-F	5170478	Roller Base (170 L)
COA-2019-F	5170420	Roller Base (240 L)
COA-2020-F	5170421	Floor Stand 200 mm (8.0") with Adjustable Feet (50 L)
COA-2002-F	5170479	Floor Stand 200 mm (8.0") with Adjustable Feet (170 L)
COA-2021-F	5170422	Floor Stand 200 mm (8.0") with Adjustable Feet (240 L)
COA-2022-F	5170423	Floor Stand 700 mm (27.6") with Casters (50 L)
COA-2003-F	5170480	Floor Stand 700 mm (27.6") with Casters (170 L)
COA-2023-F	5170424	Floor Stand 700 mm (27.6") with Casters (240 L)
COA-2005-F	5170481	2-Stage Gas Regulator for CO ₂ Choose one of the connectors below: 1080588 - CGA 320 Connector (US standard) 1080589 - BP-BS34-#8-NT4 Connector (British standard) 1080590 - G5/8-RH Connector (China standard)
COA-2024-F	5170425	Extra Shelf (50 L, Stainless Steel) with Support Rails
COA-2007-F	5170327	Extra Shelf (170 L, Stainless Steel) with Support Rails
COA-2025-F	5170426	Extra Shelf (240 L, Stainless Steel) with Support Rails
COA-2008-F	5170483	Stacking Kit (one set included with every unit purchased)
COA-2010-F	5170329	Electronic CO ₂ Analyzer, For CO ₂ / Temp Measurement (with Temperature Probe)
COA-2016-F	5170397	Electronic CO ₂ + O ₂ Analyzer, For CO ₂ / O ₂ / Temperature Measurement (with Temperature Probe)
COA-2017-F	5170398	Electronic CO ₂ + O ₂ + RH Analyzer, For CO ₂ / O ₂ / RH / Temperature Measurement (with Temperature Probe)
COA-2011-F	2170020	IQ / OQ Documentation
COA-2012-F	2170021	6" Chart Recorder, Temp, 115/230 VAC, 50/60 Hz
COA-2013-F	2170022	8" Chart Recorder, Temp/Temp, 115/230 VAC, 50/60 Hz
COA-2014-F	2170023	6" Chart Recorder, Temp/RH, 115/230 VAC, 50/60 Hz
Voyager	5250001	Voyager Software Kit
COA-2004	5170489	2-units Floor Stand Stacking Kit (For 170L)
COA-2042	5170999	2-units Floor Stand Stacking Kit (For 240L)
COA-2011-F	2170020	IQ / OQ Documentation
PROtect Gen 2	(see PROtect Gen 2 brochure)	PROtect Generation 2 monitoring system

After-Sales Services

Parts Availability

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

Registration, Documentation, and Instruction

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

Online Technical Information

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

NSF International Accreditations and TÜV Nord Certification

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

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

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

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

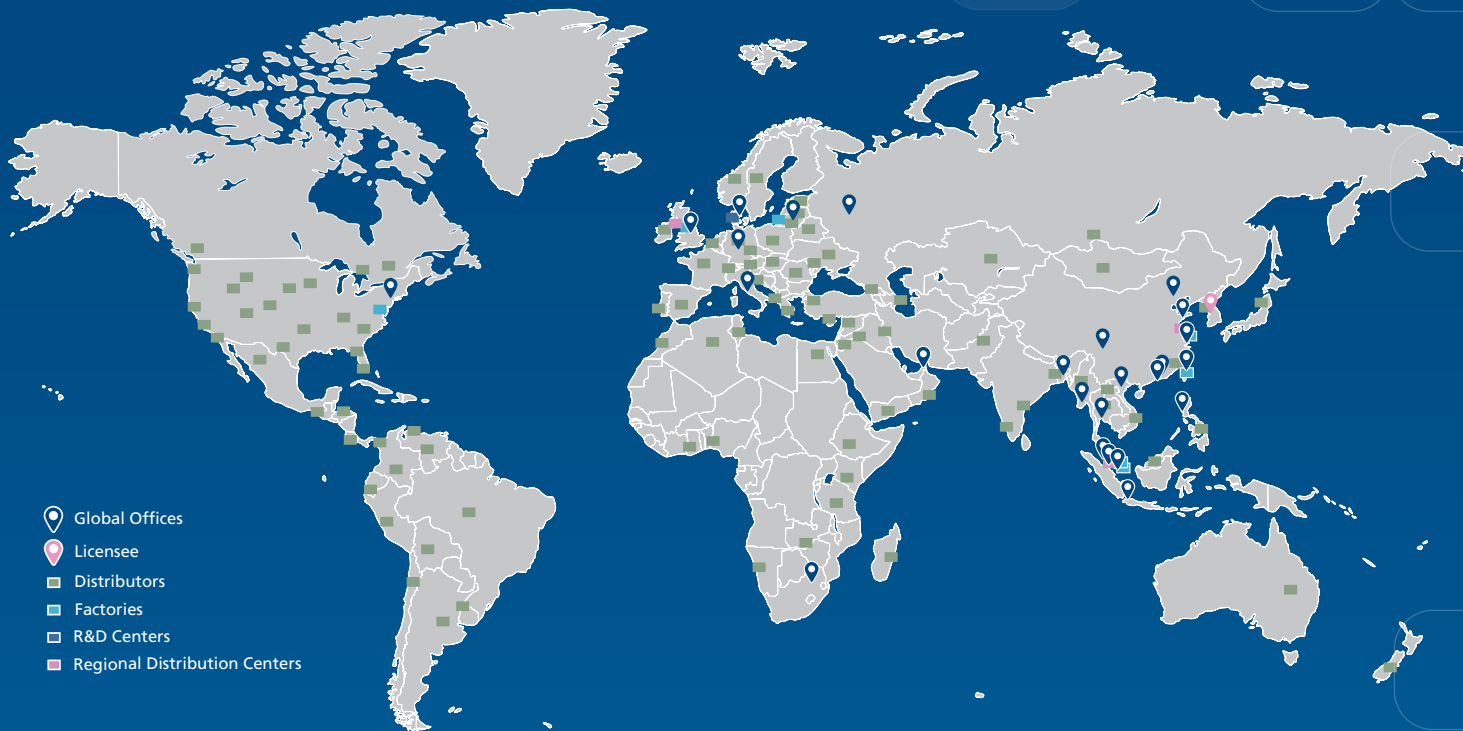
In line with Esco's commitment in providing world-class services worldwide, Esco as a manufacturer feels the impact of providing the best after-sales service through our competent service engineers. Thus, Esco is the only manufacturer in the world with the most number of NSF accredited certifiers across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

References and Links

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