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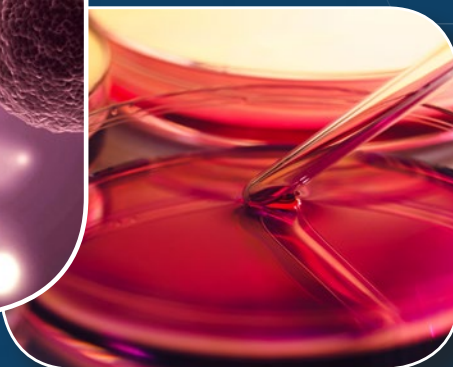
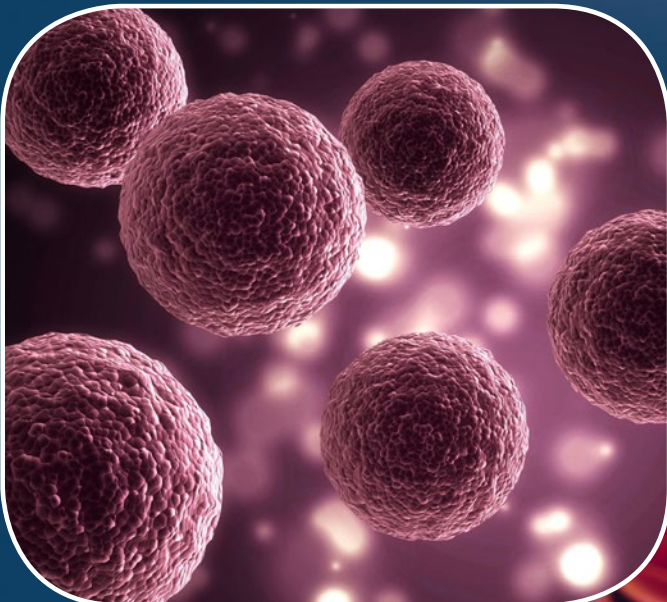
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web: www.fisherbiotec.com



Model: CCL-170/240_-_-HHS

CelCulture®

CO₂ Incubators with High Heat Sterilization
Cultivating a Culture of Safety and Efficiency





CelCulture®

CO₂ Incubators with High Heat Sterilization

INTRODUCTION

Introducing Esco's CelCulture® CO₂ Incubator with 180 °C High Heat Sterilization Cycle, offering efficient contamination protection and hassle-free maintenance without compromising accuracy and reliability in maintaining optimal conditions for cell growth.

The CelCulture® CO₂ Incubator has more design configurations suitable to meet the demands of every cell culture laboratory, taking your scientific dreams a step closer to reality.

NEW FEATURES

180°C HIGH HEAT STERILIZATION

Quick and hassle-free elimination of contaminants in the chamber and its interior components.

HEAT-RESISTANT SENSORS

Maintenance-free sensors are to be included during sterilization.

TEMPERATURE FAIL-SAFE SYSTEM

Over-temperature protection device prevents overshooting of temperature to + 0.4°C of the set point.

WATCHDOG SYSTEM-FAILURE MODE

The auto-reset watchdog will automatically reset the system in the unlikely event of system failure, preventing the controller from freezing.

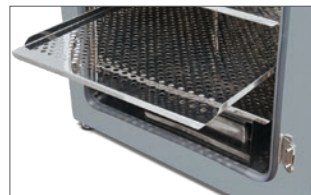
%CO₂ FAILURE MODE PROTECTION

Prevents build-up of %CO₂ over set point in cases of CO₂ sensor defect. The system will automatically stop the valve from injecting CO₂ after a certain period.

Available in 170 L (6.0 ft³) and 240 L (8.5 ft³) compact footprints

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



SHELVING

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

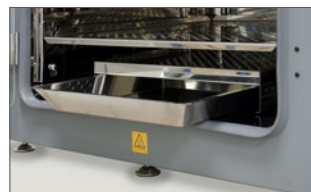
DIRECT HEAT & AIR JACKET

- Fast and uniform heating
- Rapid temperature recovery
- 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



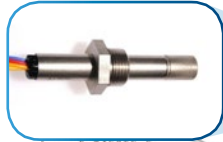
ROUNDED CORNERS

- Seamless design
- Facilitates easier cleaning

O₂ SENSOR

for suppressed O₂ model

- Highly-accurate sensor with resistance to high temperature
- Utilizes long life, non-depleting sensor technology
- Has integral heating element to prevent condensation



CO₂ SENSOR

- High-temperature-resistant infrared sensor
- Equipped with advanced sensor technology for long-term stability
- Not affected by temperature and humidity



TOP COVER

Provides quick access to electrical panel components

DOOR SWITCH

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

SMARTSENSE™ MICROCONTROLLER INTERFACE

Intuitive controller with comprehensive userconfigurable audible and visual alarms, CelAlert™ reminder system for gas and ULPA filter replacement, and 2 MB built-in flash memory for data and event logging.

BLOWER

Gentle airflow in chamber improves recovery and uniformity

OUTER DOOR

- Reversible
- Heated to prevent condensation

SAMPLE PORT

Allows direct measurement of chamber atmosphere such as temperature and CO₂ 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

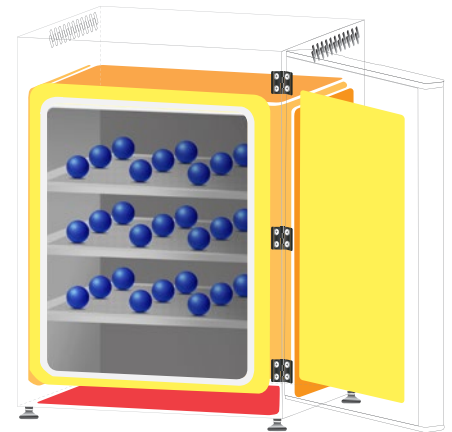
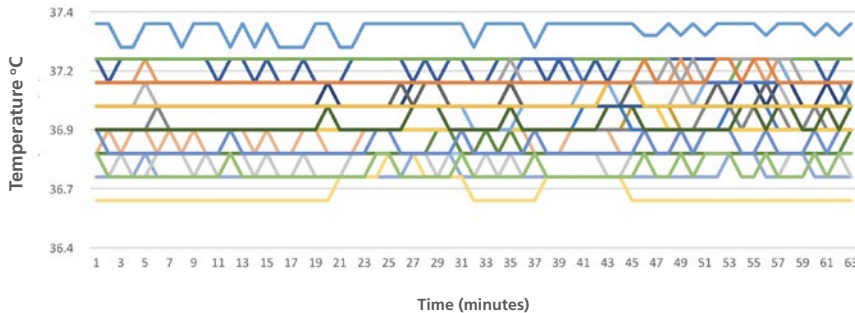
QUALITY ESCO CONSTRUCTION

- 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

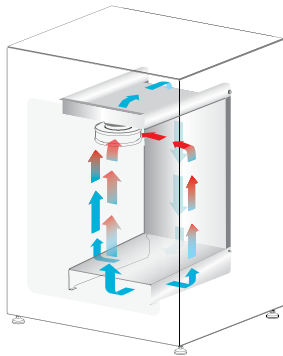
IMPROVED CULTURING ATMOSPHERE FOR BETTER CELL GROWTH

Direct heat and air jacketed design allows even distribution of heat with less than $\pm 0.35^{\circ}\text{C}^*$ temperature variation at 27 points in the chamber, following **DIN 12880: 2005** testing standards.



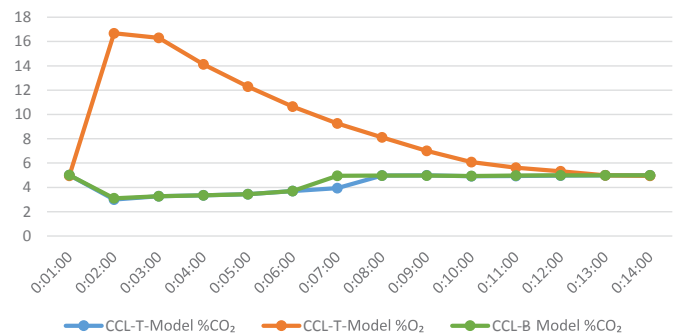
VENTIFLOW™ FORCED CONVECTION

(Applicable when ULPA filter ordered)



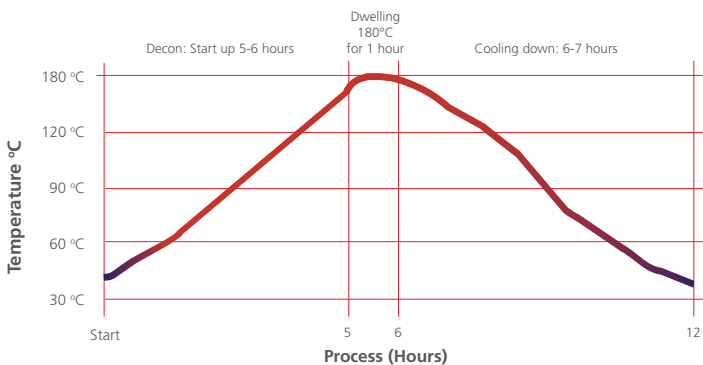
Gentle airflow accelerates homogenization and filtration of chamber atmosphere, preventing dehydration of samples while minimizing sample stress. Blower fan automatically stops when main door is opened to minimize contamination risk.

FAST PARAMETER RECOVERY



Precise and stable sensor system combined with the SmartSense™ microcontroller allows quick parameter recovery without overshooting.

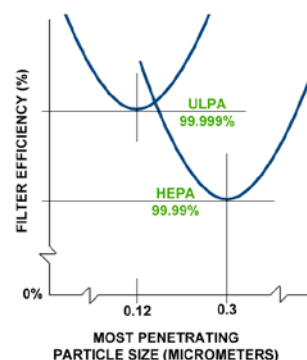
COMPLETE CONTAMINATION CONTROL



Complete Cycle lasts up to 12 hours.

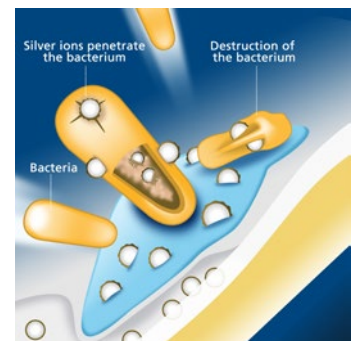
180°C HIGH HEAT STERILIZATION

Conforms to the International Standards for dry heat sterilization and proven to be effective in killing normally-resistant fungi, bacterial spore and vegetative cells. Nontoxic and noncorrosive sterilization that completes within 12 hours leaving the chamber cool and dry at the end of the cycle.



ULPA FILTRATION SYSTEM

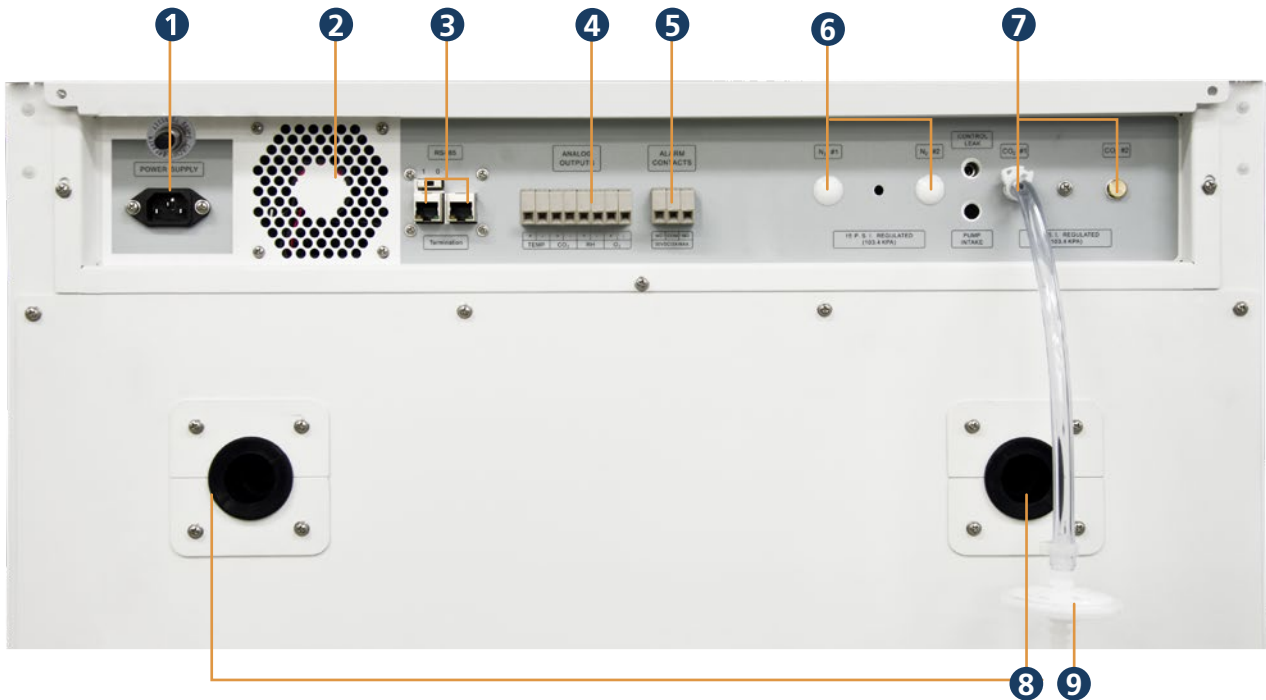
Has 10x more filtering efficiency than HEPA filter for a cleaner and safer chamber atmosphere.



ISOCIDE™ ANTIMICROBIAL SURFACE COATING

Enhances sample protection by inhibiting microbial growth on the external surfaces.

REAR PANEL



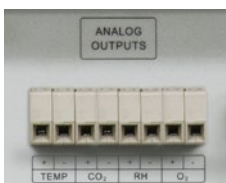
1 Power Supply Inlet
Connects the incubator unit to the power source.



2 Cooling Fan
Prevents the electrical panel from overheating.



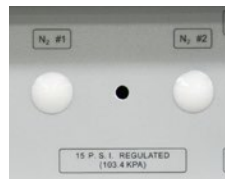
3 RS485 Communication Port
Provides serial communication port for PC. It can be daisy-chained from one product to another and can also be connected to a PC.



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.



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



6 N₂ Gas Supply Inlet (for Suppressed O₂ model)
Only applicable for models with N₂* control function. Inlet pressure requirement is 15 psi.

** O₂ and N₂ functions are applicable only to models with Suppressed O₂.*



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



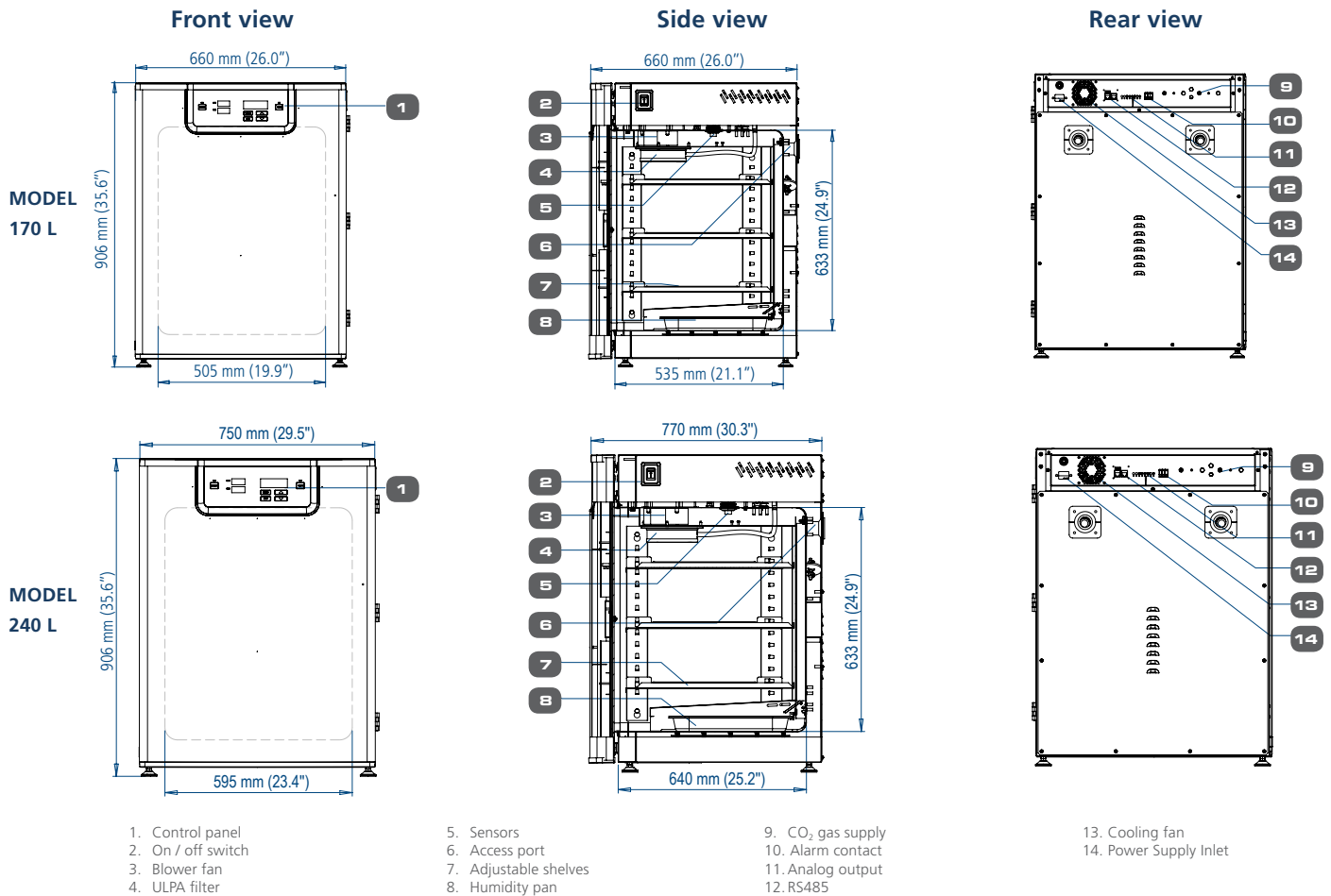
8 Access Ports
Allows cables, hoses or additional sensors to be routed into the work space. A rubber stopper is installed as standard configuration and is part of standard accessories.



9 0.2µm Gas Inlet Filter
Provided to remove any contaminants from the gas supply.



ENGINEERING DRAWING



ORDERING INFORMATION

IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER

| MODEL | ITEM CODE | DESCRIPTION |
|----------------|-----------|---|
| CCL-170B-8-HHS | 2170295 | CelCulture® Incubator 170 L IR Sensor, CO ₂ Control, ULPA, 180°C HHS, 230 VAC 50/60 Hz |
| CCL-240B-8-HHS | 2170270 | CelCulture® Incubator 240 L IR Sensor, CO ₂ Control, ULPA, 180°C HHS, 230 VAC 50/60 Hz |

SUPPRESSED O₂ MODEL WITH STAINLESS STEEL CHAMBER

| MODEL | ITEM CODE | DESCRIPTION |
|----------------|-----------|--|
| CCL-170T-8-HHS | 2170297 | CelCulture® Incubator 170L IR Sensor, CO ₂ /O ₂ Control, ULPA, 180°C HHS, 230 VAC 50/60 Hz |
| CCL-240T-8-HHS | 2170300 | CelCulture® Incubator 240L IR Sensor, CO ₂ /O ₂ Control, ULPA, 180°C HHS, 230 VAC 50/60 Hz |

IR SENSOR MODEL WITH STAINLESS STEEL CHAMBER (NO ULPA FILTER)

| MODEL | ITEM CODE | DESCRIPTION |
|-------------------|-----------|---|
| CCL-170B-8-NF-HHS | 2170298 | CelCulture® Incubator 170 L IR Sensor, CO ₂ Control, 180°C HHS, 230 VAC 50/60 Hz, No ULPA Filter |
| CCL-240B-8-NF-HHS | 2170299 | CelCulture® Incubator 240 L IR Sensor, CO ₂ Control, 180°C HHS, 230 VAC 50/60 Hz, No ULPA Filter |

SUPPRESSED O₂ MODEL WITH STAINLESS STEEL CHAMBER (NO ULPA FILTER)

| MODEL | ITEM CODE | DESCRIPTION |
|-------------------|-----------|---|
| CCL-170T-8-NF-HHS | 2170301 | CelCulture® Incubator 170 L IR Sensor, CO ₂ /O ₂ Control, 180°C HHS, 230 VAC 50/60 Hz, No ULPA Filter |
| CCL-240T-8-NF-HHS | 2170302 | CelCulture® Incubator 240 L IR Sensor, CO ₂ /O ₂ Control, 180°C HHS, 230 VAC 50/60 Hz, No ULPA Filter |

| GENERAL SPECIFICATIONS | | CCL-170_--HHS | CCL-240_--HHS | |
|---|--|---|--|--|
| TEMPERATURE | | | | |
| Temperature Control Method | Direct Heat and Air Jacket using Microcontroller PI | | | |
| Ambient Temperature Range | 18 to 30 °C (64.4 to 86.0 °F) | | | |
| Temperature Control Range, °C | Ambient +7 to 60 | | | |
| Temperature Uniformity, °C * | ±0.35 | | | |
| Temperature Accuracy, °C * | ±0.2 | | | |
| Temperature Fluctuation, °C * | ±0.2 | | | |
| Temperature Recovery Time** (after 30 seconds door opening, 98% from initial value) | ≤7 minutes | | | |
| CO₂ | | | | |
| CO ₂ Control System | Microcontroller PI | | | |
| CO ₂ Control Range | 0 - 19.5% (0.0% to disable CO ₂ control) | | | |
| CO ₂ Fluctuation | ± 0.2% | ± 0.3% | | |
| CO ₂ Sensor | Infrared (IR) Sensor | | | |
| CO ₂ Recovery Time*** (after 30 seconds door opening, 98% from initial value) | At 5.0% CO ₂ by volume (Standard unit): ≤5 minutes Suppressed O ₂ model: ≤8 mins. | At 5.0% CO ₂ by volume (Standard unit): ≤5 minutes Suppressed O ₂ model: ≤10 mins. | | |
| O₂ | | | | |
| O ₂ Control System | Microcontroller PI | | | |
| O ₂ Control Range | 1.0 - 20.7% (20.7% to disable O ₂ control) | | | |
| O ₂ Sensor | Zirconia O ₂ Sensor | | | |
| O ₂ Recovery Time**** (after 30 seconds door opening, 98% from initial value) | At 5.0% O ₂ by volume: ≤10 mins. | At 5.0% O ₂ by volume: ≤12 mins. | | |
| HUMIDITY | | | | |
| Humidification Method | Humidity pan | | | |
| Humidity Range (at 37°C) | 85 - 90% | | | |
| PHYSICAL CONSTRUCTION | | | | |
| Interior Volume | 170 L (6 ft ³) | 248 L (8.8 ft ³) | | |
| External Dimensions (W x D x H) | 660 x 660 x 906 mm (26.0" x 26.0" x 35.6") | | 750 x 770 x 906 mm (29.5" x 30.3" x 35.6") | |
| Internal Dimensions (W x D x H) | 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") | |
| Net Weight | 101 kg (222.7 lbs.) | | 121 kg (266.8 lbs.) | |
| Chamber Construction | Main Body | Electrogalvanized steel with ISOCIDE™ antimicrobial coating | | |
| | Interior Material | Stainless steel, type 304 | | |
| | Number of Shelves | 4 | | |
| | Maximum Number of Shelves | 7 | | |
| | Shelves Area (W x D) | 465 x 470 mm (18.3" x 18.5") | 550 x 560 mm (21.7" x 22.0") | |
| | Maximum Load per Shelf | 11 kg/shelf (24.3 lbs./shelf) | 15 kg/shelf (33.1 lbs./shelf) | |
| Electrical Configuration 220-240 VAC, 50/60 Hz | Nominal Power at 37°C | 42.2 W | 42.2 W | |
| | Maximum Power Consumption | 1300 W | 1500 W | |
| | Full Load Amps | 5 A | 7 A | |
| Electrical Configuration 110-130 VAC, 50/60 Hz | Nominal Power at 37°C | 42.2 W | 42.2 W | |
| | Maximum Power Consumption | 1400 W | 1770 W | |
| | Full Load Amps | 10 A | 14 A | |
| Shipping Weight | 140 kg (308.6 lbs) | | 160 kg (352.7 lbs) | |
| Shipping Dimensions (W x D x H) | 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 | 0.70 m ³ (24.85 ft ³) | | 0.79 m ³ (28.03 ft ³) | |
| CONTAMINATION CONTROL | | | | |
| Contamination Control Methods | 1) Main body is electrogalvanized steel with ISOCIDE™ antimicrobial coating; 2) 180°C high heat sterilization cycle; 3) ULPA filter (optional) - filter must be removed during decon 4) 0.2 µm gas inlet filter 5) 1-micron air circulation filter | | | |

All data recorded were observed with unloaded chambers and under optimum factory setting of 22 ±3°C with room humidity of 30-60%.




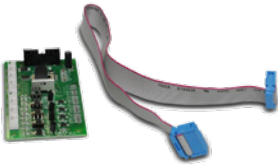


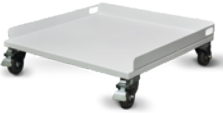


* Results are achieved when tested at 37°C as set point. Results may vary if set point changes and calibration is needed.

** For temperature not exceeding 37°C

*** For CO₂ not exceeding 5.2%

**** For O₂ level not lower than 4.8%.

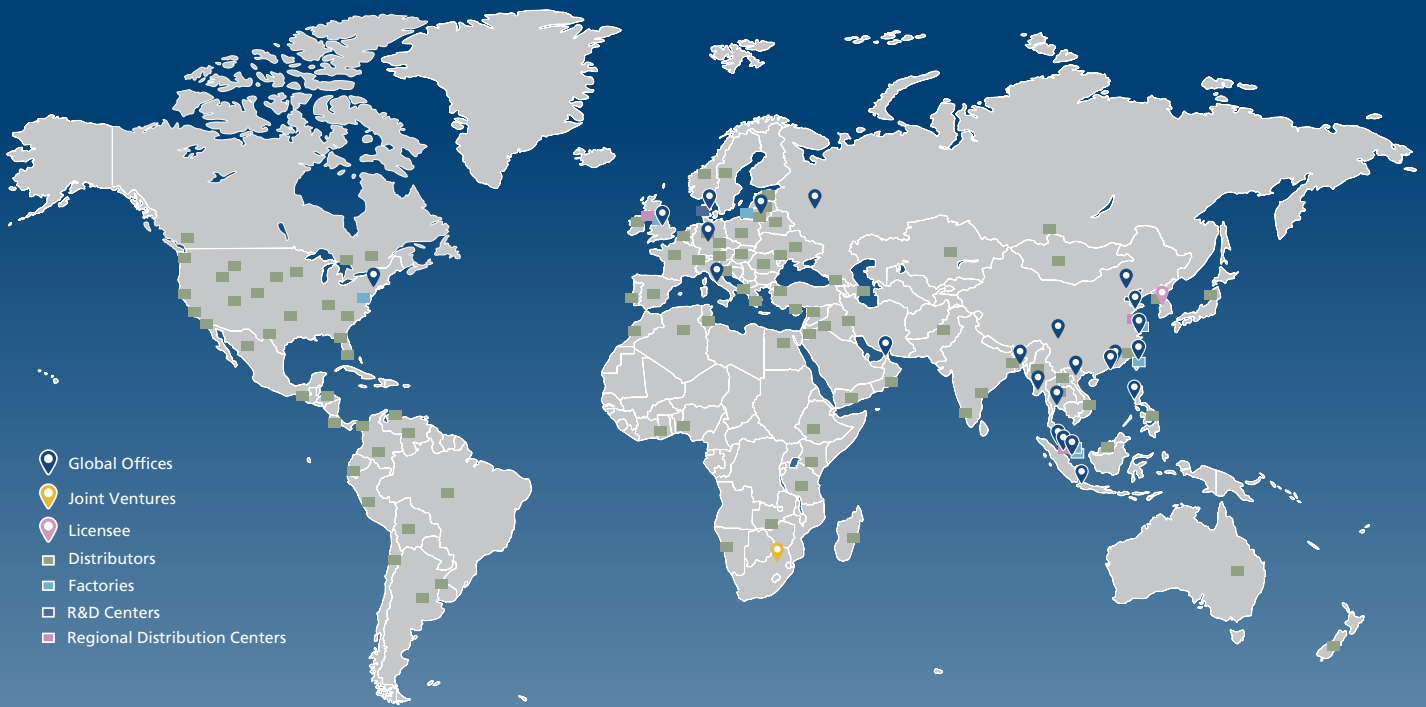
OPTIONS AND ACCESSORIES

| | DESCRIPTION | COA CODE | ITEM CODE |
|---|--|----------------------------------|-----------|
|  | HUMIDITY DISPLAY This option allows the incubator to monitor the relative humidity inside the chamber. 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 and does not need to be removed prior to sterilization. | COA-1001 (factory-installed) | 5170470 |
| | | COA-1001-F (field-installed) | 5170471 |
|  | CO₂ BACKUP This option allows two tanks of CO ₂ 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-1002 (factory-installed) | 5170472 |
| | | COA-1002-F (field-installed) | 5170473 |
|  | N₂ BACKUP This option allows two tanks of N ₂ 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-1007 (factory-installed) | 5170490 |
| | | COA-1007-F (field-installed) | 5170491 |
|  | ANALOG OUTPUT A set of relay contacts is provided at the rear of the incubator that allows the incubator to output analog signals representing the temperature, %CO ₂ , %O ₂ and relative humidity, depending on the options available in the 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-1005 (factory-installed) | 5170475 |
| | | COA-1005-F (field-installed) | 5170476 |
|  | 2-STAGE GAS REGULATOR FOR CO₂/N₂ CO ₂ and N ₂ gas input regulators reduce pressure from the tank to the incubator. It has dual pressure gauges, barbed line connection and shutoff valve. It prevents over-pressurization of the gas supply into the incubator which could cause the tubing to burst. | COA-2005-F | 5170481 |
|  | EXTRA STAINLESS STEEL SHELF Each CO ₂ incubator comes standard with 4 shelves and it can accommodate up to a maximum of 7 shelves. | COA-2007-F (for 170 L models) | 5170327 |
| | | COA-2025-F (for 240 L models) | 5170426 |
|  | ROLLER BASE Roller base is available with casters for mobility of your incubators and to provide protection against floor contamination. | COA-2001-F (for 170 L models) | 5170478 |
| | | COA-2019-F (for 240 L models) | 5170420 |
|  | 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-2002-F (for 170 L models) | 5170479 |
| | | COA-2021-F (for 240 L models) | 5170422 |
|  | 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-2003-F (for 170 L models) | 5170480 |
| | | COA-2023-F (for 240 L models) | 5170424 |

| | DESCRIPTION | COA CODE | ITEM CODE |
|---|---|---------------------------------|-----------|
|  | <p>STACKING KIT The stacking kit is a provision to stack one incubator on top of another incubator. Four stacking brackets are included as standard inside the Accessories Kit Box with each incubator.</p> | COA-2008-F | 5170483 |
|  | <p>2-UNITS FLOOR STAND STACKING KIT (FOR 170 L ONLY) This floor stand allows two incubator 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 in case of troubleshooting. Floor stand for upper unit also has casters for easy relocation.</p> | COA-2004-F | 5170489 |
|  | <p>ELECTRONIC CO₂ ANALYZER, FOR CO₂ / TEMP MEASUREMENT (WITH TEMPERATURE PROBE)</p> | COA-2010-F | 5170329 |
| | <p>ELECTRONIC CO₂ + O₂ ANALYZER, FOR CO₂ / O₂ / TEMP MEASUREMENT (WITH TEMPERATURE PROBE)</p> | COA-2016-F | 5170397 |
| | <p>ELECTRONIC CO₂ + O₂ + RH ANALYZER, FOR CO₂ / O₂ / RH / TEMP MEASUREMENT (WITH TEMPERATURE PROBE)</p> | COA-2017-F | 5170398 |
|  | <p>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.</p> | COA-2012-F | 2170021 |
|  | <p>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.</p> | COA-2013-F | 2170022 |
|  | <p>6" CHART RECORDER, TEMP/RH, 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 and humidity data.</p> | COA-2014-F | 2170023 |
|  | <p>REVERSED DOOR SWING The incubator has a door opening on the left side by default. This option allows the doors to be factory-installed as opening from the right side.</p> | COA-1004 (factory-installed) | 5170474 |
|  | <p>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).</p> | COA-2011-F | 2170020 |
|  | <p>VOYAGER® SOFTWARE KIT 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. Compatible equipment includes laboratory ovens and incubators, low temperature incubators, CO₂ incubators, and ultra-low temperature freezers.</p> | Voyager® | 5250001 |

ESCO GLOBAL NETWORK

42 LOCATIONS IN 21 COUNTRIES ALL OVER THE WORLD



ESCO

WORLD CLASS. WORLDWIDE.



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