



CelCulture® CO2 Incubator  
Model CCL-170\_-\_

**CelCulture®**

**CO<sub>2</sub> Incubators**  
*Cradle for Beautiful Cells*



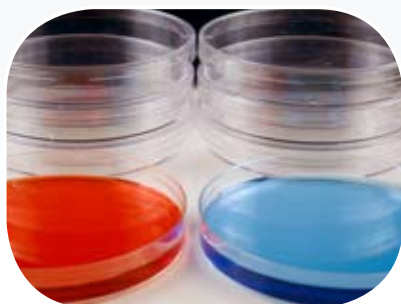


## Introducing CelCulture®

CO<sub>2</sub> incubators are widely used in scientific research to grow and maintain cell cultures. Typical fields of application include tissue engineering, *in vitro* fertilization, neuroscience, cancer research and other mammalian cell research.

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

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## Esco CelCulture® CO<sub>2</sub> Incubators

*Cradle for Beautiful Cells*

### Blower

Gentle airflow in chamber improves recovery and uniformity

### ULPA filter

- 99.999% efficient, superior to conventional HEPA filters
- Filters air continuously
- Chamber returns to ISO Class 5 cleanliness in 13 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

### ISOCIDE™ coating

Antimicrobial coating eliminates 99.9% of surface bacteria within 24 hours of exposure

### Direct heat & air jacket

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



### Pilaster

Can be removed without tools for easy cleaning



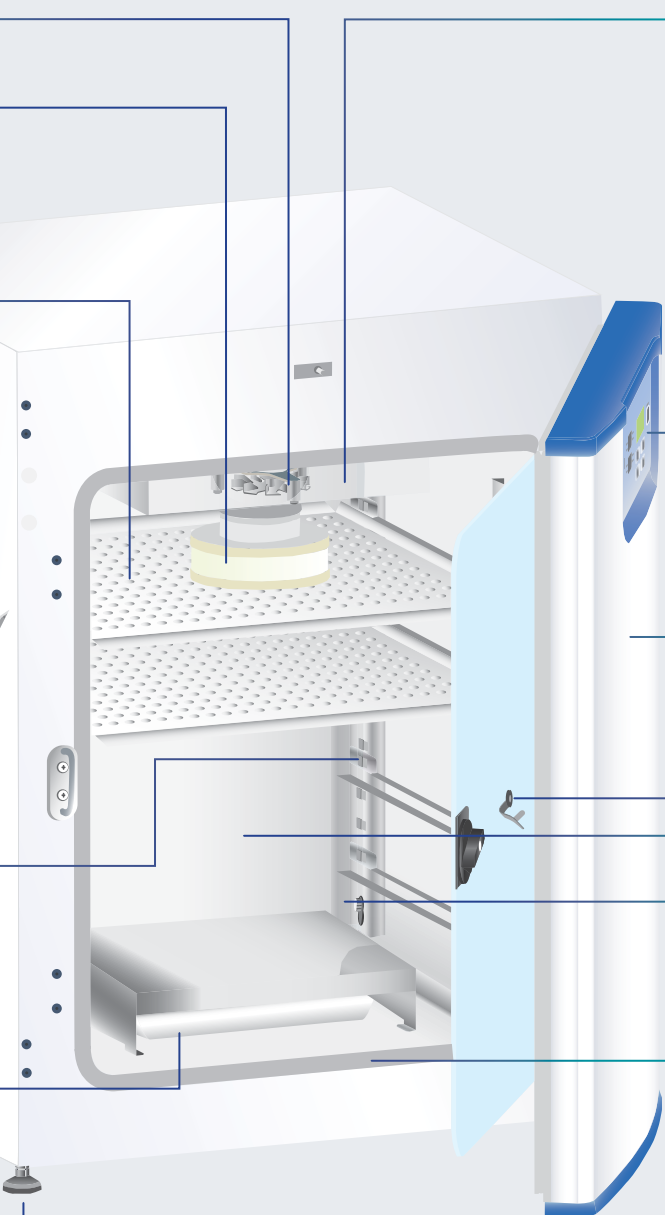
### Water pan

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



### Leveling feet

Easily adjustable



*Esco CelCulture CO2 Incubators,  
Model CCL-170\_...*

#### CO<sub>2</sub> Sensor

- Choice of TC or IR
- Single beam dual wavelength IR sensor is drift free
- Auto-zeroing

#### Smartsense™ microprocessor interface

Intuitive, fully equipped control and monitoring system



#### Outer door

- Reversible
- Heated to prevent condensation



#### Sample port

Allows direct measurement of chamber atmosphere



#### Duct work

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



#### Rounded corners

- Seamless design
- Facilitates cleaning

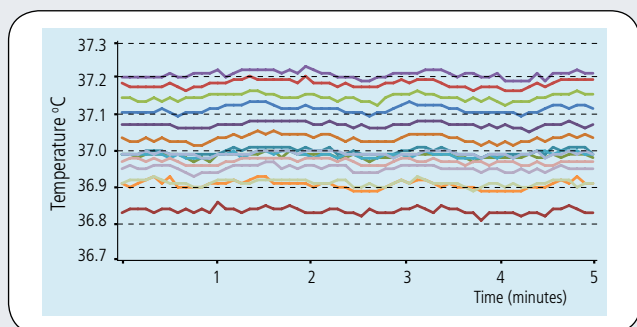


#### Inner door seal

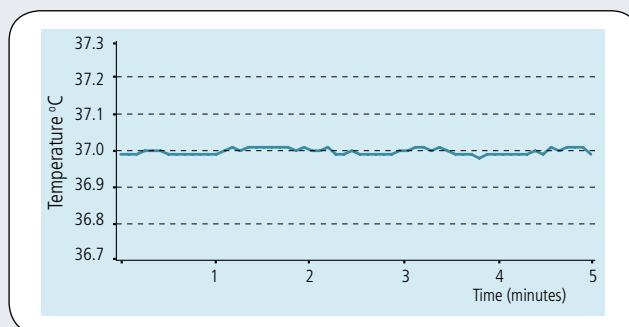
Airtight to prevent CO<sub>2</sub> leakage thus lowers CO<sub>2</sub> consumption

## VivoCell™ Precise Parameter Control

### Best uniformity and control among competition

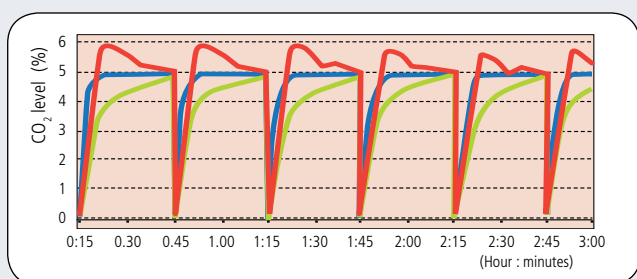


Different lines represent different sensor positions inside the chamber. Esco CelCulture has uniformity of less than  $\pm 0.2$  °C which means all the samples are evenly heated.



Minimal fluctuation ( $\pm 0.1$  °C) ensures temperature stability.

## Fast CO<sub>2</sub>, temperature and humidity recovery without overshoot

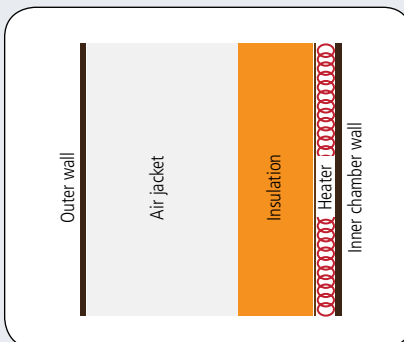
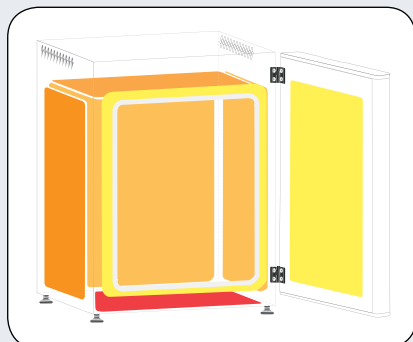


Precisely tuned sensor and software results in fast recovery of CO<sub>2</sub> without overshoot. This ensures uniform CO<sub>2</sub> levels even with frequent incubator door openings. Similarly, temperature and humidity recoveries are twice as fast as conventional incubators.

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

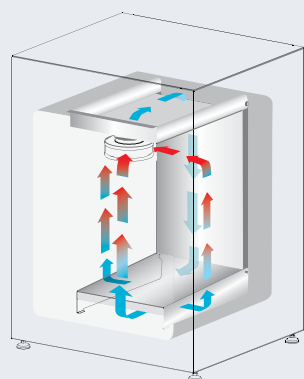
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## Direct heat and air jacket

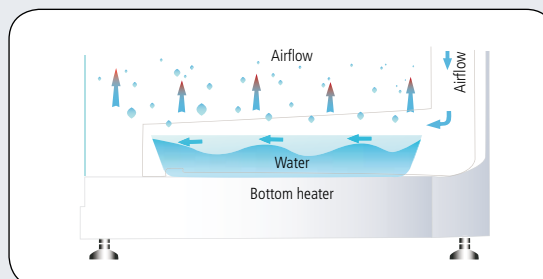


- Direct heating enables rapid temperature recovery while air jacket provides isolation against ambient temperature fluctuations.
- All six surfaces of the incubator are heated via eight heaters grouped into three control zones
  - The main heater provides precise temperature control.
  - The bottom heater warms the water pan and controls humidity.
  - The outer door heater prevents condensation on glass door and facilitates temperature recovery.

## VentiFlow™ forced convection

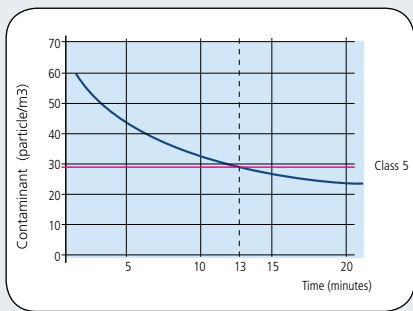


- No disturbance to cell culture.
- Blower automatically stops when door is opened, to minimize mixing of chamber and room air.
- Accelerates recovery of chamber air to ISO Class 5 Cleanliness after door closing to prevent contamination.
- Improves CO<sub>2</sub>, humidity and temperature uniformity.



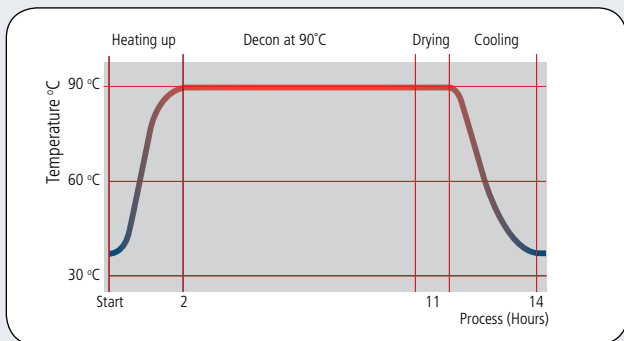
- Filtered air circulates across water pan to accelerate humidifying process.

## SteriSafe™ ULPA filtration system



- An ULPA filter filters the chamber air continuously to keep chamber at ISO Class 5 cleanliness.
- This ensures all contaminants from the room air and chamber air are filtered and 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 condition after a mere 13 minutes following a door closing.

## Validated SwiftCon™ overnight decontamination cycle



Microorganisms	Before Decon	After Decon
<i>Bacillus subtilis</i>	3.65 x 10 <sup>6</sup>	0
<i>Enterococcus faecalis</i>	5.17 x 10 <sup>5</sup>	0
<i>Escherichia coli</i>	4.80 x 10 <sup>5</sup>	0
<i>Pseudomonas aeruginosa</i>	7.76 x 10 <sup>5</sup>	0
<i>Corynebacterium xerosis</i>	5.05 x 10 <sup>5</sup>	0
<i>Staphylococcus epidermidis</i>	2.35 x 10 <sup>5</sup>	0
<i>Geobacillus stearothermophilus</i>	4.83 x 10 <sup>5</sup>	0

- Use of 90°C moist heat kills most microorganisms.
- SwiftCon™ completes within 15 hours.
- Chamber is cool and dry at the end of the cycle. No further wipe down is needed.
- 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.

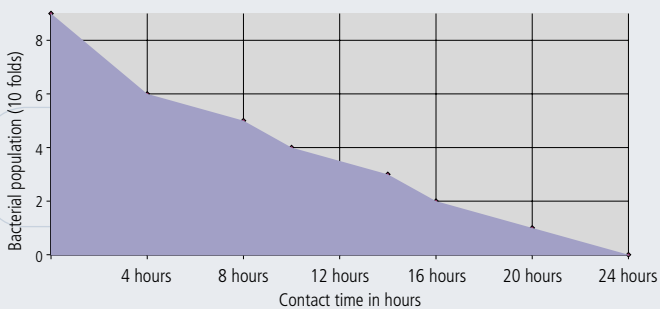
## Gas injection lines are filtered



- All gas injection lines are filtered via 0.2 micron in-line filter to remove impurities and contaminants before being injected into the chamber.
- In-line filters are field replaceable external to the incubator.

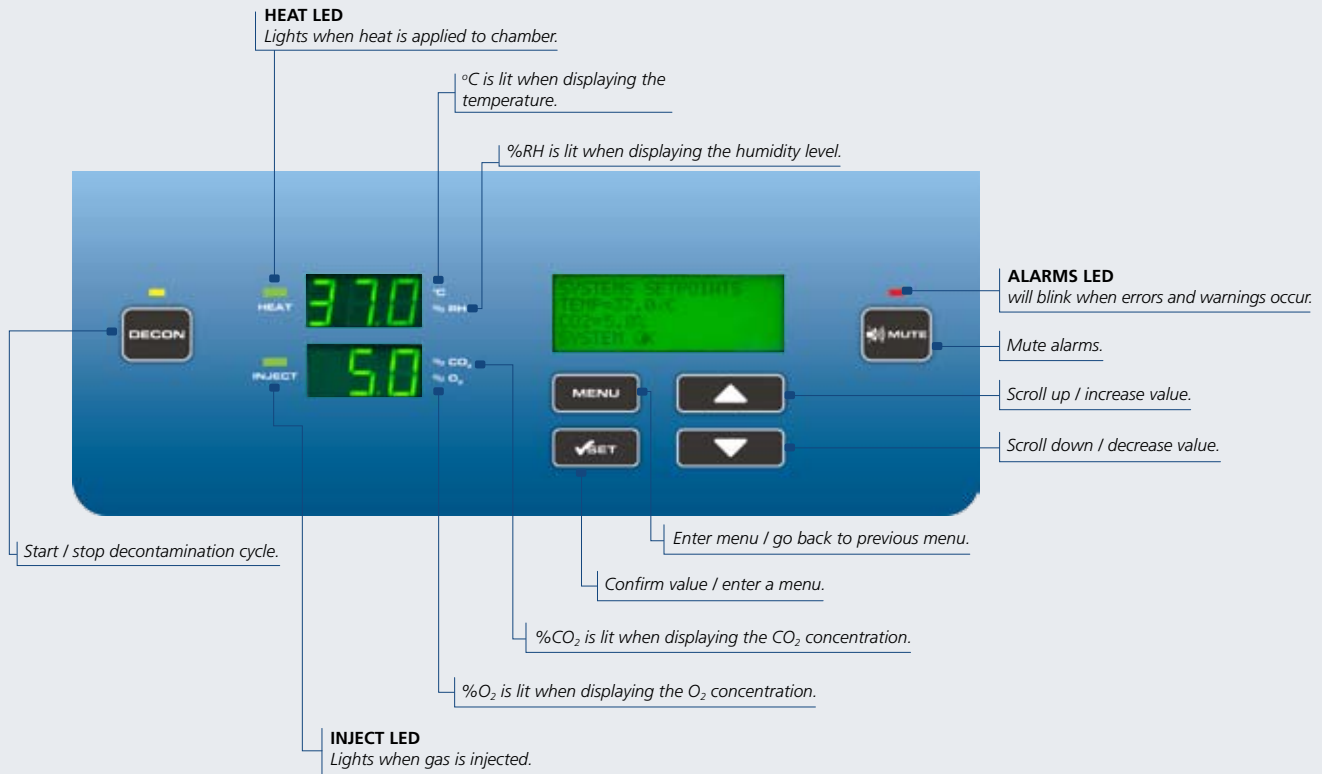
## ISOCIDE™ antimicrobial coating

- Chamber is made of type 304 stainless steel. Main body is electrogalvanized steel with **ISOCIDE™** antimicrobial coating.



Esco **ISOCIDE™** is an antimicrobial inhibitor that eliminates 99.9% surface bacteria within 24 hours of exposure. Isocide is integrated into the coating and cannot be washed out or diminished by repeated cleaning.

## User - Friendly Software Interface



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- Comprehensive, user-configurable alarms:
  - Temperature
  - CO<sub>2</sub>
  - Humidity (if installed)
  - O<sub>2</sub> (if installed)
- CelAlert™ alarm system reminds user to replace parts.
  - CO<sub>2</sub> tank depletion reminder in addition to CO<sub>2</sub> tank low alarm. Automatic calculation of how much CO<sub>2</sub> gas is left in the tank provides fail proof reminder that alerts user one week before the gas is depleted. This gives user some buffer time to place order for new tanks.
  - ULPA reminder will alert user to replace ULPA filter.

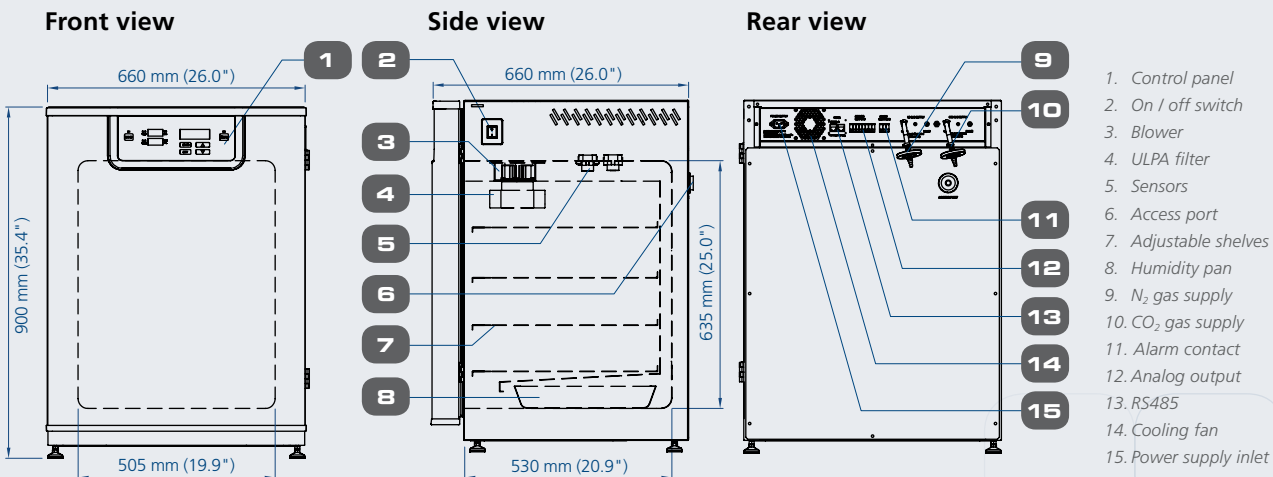


- Intelligent data and event logger records all incubator parameters for on screen recall. 16 MB built-in flash memory guarantees long term storage of data.
- Diagnostic interface and on line quick help provide comprehensive solutions to frequently encountered problems.
- RS485 data output.





## CelCulture CO<sub>2</sub> Incubators Technical Specifications



### Ordering Information

Models	Description
CCL-170A-8	CelCulture <sup>®</sup> Incubator, 170L, TC Sensor, CO <sub>2</sub> Control, ULPA, High Temp Decon, 230VAC, 50/60HZ
CCL-170B-8	CelCulture <sup>®</sup> Incubator, 170L, IR Sensor, CO <sub>2</sub> Control, ULPA, High Temp Decon, 230VAC, 50/60HZ
CCL-170A-9	CelCulture <sup>®</sup> Incubator, 170L, TC Sensor, CO <sub>2</sub> Control, ULPA, High Temp Decon, 115VAC, 50/60HZ
CCL-170B-9	CelCulture <sup>®</sup> Incubator, 170L, IR Sensor, CO <sub>2</sub> Control, ULPA, High Temp Decon, 115VAC, 50/60HZ
Options	Description
COA-1001	Humidity Display, Factory Installed
COA-1001-F	Humidity Display, Field Install Kit
COA-1002	CO <sub>2</sub> Backup (Tank Switcher), Factory Installed
COA-1002-F	CO <sub>2</sub> Backup (Tank Switcher), Field Installed
COA-1004	Reversed Door Swing, Factory Installed
COA-1005	Analog Outputs, Factory Installed
COA-1005-F	Analog Outputs, Field Installed
COA-1006	Sealed Inner Door Kit (4 Glass Doors With Latches), Factory Installed
Accessories	Description
COA-2001-F	Roller Base
COA-2002-F	Floor Stand (6" Adjustable Feet)
COA-2003-F	Floor Stand 700mm
COA-2005-F	2-Stage Gas Regulator for CO <sub>2</sub> /N <sub>2</sub>
COA-2007-F	Extra Shelf, With 2 Support Rails
COA-2008-F	Stacking Kit
COA-2010-F	Electronic CO <sub>2</sub> Analyzer (Worldwide), For CO <sub>2</sub> /Temp Measurement (Without Temp. Probe)
COA-2011-F	IQ/OQ Documentation
COA-2012-F	6" Chart Recorder, Temp, 115/230VAC 50/60HZ
COA-2013-F	8" Chart Recorder, Temp/Temp, 115/230VAC 50/60HZ
COA-2014-F	6" Chart Recorder, Temp/RH, 115/230VAC 50/60HZ
COA-2015-F	Inner Door Shelving Kit (4 Sets With Total 12 Mini Shelves For One Incubator)
COA-2016-F	Temp. Probe (5mm Tip) for Electronic CO <sub>2</sub> Analyzer

## Celculture CO<sub>2</sub> Incubator Model CCL-170 \_ \_

Temperature	
Temp. Control Method	Direct heat & air jacket
Temp. Range, °C	Amb. +3 to 60
Temp. Uniformity, °C	<± 0.2
Temp. Accuracy, °C	<± 0.1
Recovery Time Without Overshoot* (after 1 min. door opening)	6 mins
Ambient Temp. Range	18 to 34°C (64 to 93 °F)
CO <sub>2</sub>	
CO <sub>2</sub> Control System	Microprocessor PID
CO <sub>2</sub> Range, % CO <sub>2</sub>	0-20
CO <sub>2</sub> Accuracy, % CO <sub>2</sub>	± 0.1
CO <sub>2</sub> Sensor	IR sensor or TC sensor
CO <sub>2</sub> Recovery Time Without Overshoot** (after 1 min. door opening)	4 mins
Humidity	
Humidification Method	Humidity pan
Humidity Range, % RH	Up to 97%
Humidity Recovery (± 5% from initial)	15 mins
Physical Construction	
Interior Volume	170 l (5.7 cu.ft.)
External Dimensions (W x D x H)	660 x 660 x 900 mm (26.0" x 26.0" x 35.4")
Internal Dimensions (W x D x H)	505 x 530 x 635 mm (19.9" x 20.9" x 25.0")
Shipping Weight	120 kg (264.6 lbs)
Number of Shelves	4
Maximum No. of Shelves	7
Shelves Area (W x D)	470 x 470 mm (18.5" x 18.5")
Max. Load per Shelf	11 kg/shelf (24.3 lbs/shelf)
Available Electrical Configuration	230 VAC, 50/60 Hz, 1Ø, 3.4 A
	115 VAC, 50/60 Hz, 1Ø, 7.0 A
Power Consumption	800 watts
Effective Watt at 37°C	80 watts
Contamination Control	
Interior Material	Stainless steel, type 304
Contamination Control Methods	1) Main body is eletrogalvanized steel with ISOCIDE antimicrobial coating; 2) ULPA filter; 3) Moist 90°C overnight decon. cycle

\* For temperature not exceeding 37.3°C

\*\* For CO<sub>2</sub> not exceeding 5.2%

Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and cleanroom equipment solutions. Products sold in more than 100 countries include biological safety cabinets, cleanroom products, compounding pharmacy equipment, CO<sub>2</sub> incubators, containment / pharma products, ductless fume hoods, in vitro fertilization workstations, lab animal research products, laboratory fume hoods, laboratory ovens and incubators, laminar flow clean benches and PCR products and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community. [www.escoglobal.com](http://www.escoglobal.com).

Biological Safety Cabinets and Laminar Flow • Laboratory Fume Hoods • Laboratory Ovens  
Laboratory Incubators • PCR Thermal Cyclers • Microplate Shaker/Incubators • Ultraflow Freezers

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