

Cell culture

# High volume culturing

Forma Steri-Cult CO<sub>2</sub> Incubators

# Excellent protection

## For high-value cultures

The Thermo Scientific™ Forma™ Steri-Cult™ CO<sub>2</sub> incubator brings leading edge technology with the use of advanced components into your lab. With IR CO<sub>2</sub> sensor, precise microprocessor controls,

**Maximum contamination control** is provided by minimizing the risk of airborne, waterborne and surface contaminants. The Forma Steri-Cult CO<sub>2</sub> incubator features an in-chamber HEPA air filtration system which continuously removes particulates and maintains your important cultures in cleanroom-like Class 100 (ISO Class 5) air quality conditions. Cleaning protocols are simplified with an on demand 140 °C high temperature sterilization cycle, which reliably eliminates contamination from all internal surfaces, and with a unique design eliminating standing water from within the Steri-Cult CO<sub>2</sub> incubator, there is no opportunity for airborne contaminants to colonize the water supply and threaten your work.

**Active humidification system** – featuring an exclusive external humidity reservoir, the Steri-Cult CO<sub>2</sub> incubator allows you to control humidity levels accurately, with no water pan to manage, eliminating a primary breeding ground for contaminants inside an incubator.

**Our largest stackable incubator** – with two high capacity chamber sizes of 8.2 cu. ft. (232 L) and 11.4 cu. ft. (322 L) to choose from, the Steri-Cult CO<sub>2</sub> incubator gives you more room to grow.

active humidity control, HEPA air filtration, high temperature sterilization capability and an external humidity reservoir, it delivers the quality needed for scientists who demand the best for their work.



The Steri-Cult incubator is stackable to maximize space (hardware included as standard)

# Support tomorrow's breakthroughs today

## Contamination control and cleanability

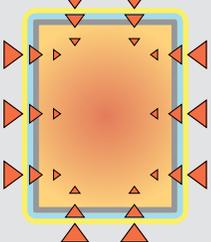
### Designed for easy cleaning

- Polished stainless steel interior with coved corners is easy to clean and sturdy shelves and supports can be readily removed without tools for when desired.
- Quality air filters on gas inlet, sample port, and water fill bottle's lid to remove potential contaminants.
- Inner door gasket is removable and cleanable, and adjusts continually to ensure a tight seal.
- No internal humidity water pan to manage or disinfect.
- Proven high heat sterilization system reliably destroys all mycoplasma, fungi, molds, yeast, bacteria and even heat resistant spores.

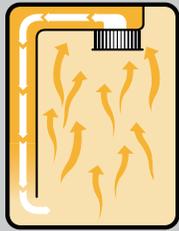
### 100% HEPA filtration for rapid response Class 100 (ISO Class 5) air quality

- The in-chamber HEPA air filtration system continuously filters the entire chamber volume every 60 seconds, reducing particulates to Class 100 (ISO Class 5) cleanroom levels, to preserve your culturing environment.
- The HEPA filter entraps particulate air contaminants and prevents their escape. Airborne contaminants are a major source of contamination in most cell culture lab settings. Efficiency and long term effectiveness of the HEPA filter airflow system protects your cultures and minimizes downtime.
- Optimized air flow system design will not interfere with samples or incubator function.
- Class 100 (ISO Class 5) air quality conditions are achieved within 5 minutes following a routine door opening.
- **Volatile Organic Compounds (VOC) filtration system.** An optional built-in VOC filtration system removes volatile organic vapors which could pose risk to sensitive cultures. Its molecular sieve technology captures potentially toxic chemicals commonly found in products such as lab solvents, cleaning agents and plastics, which may find their way into the incubator.
  - This easily installed, low maintenance filtration system is more effective and longer lasting than activated charcoal systems in high humidity conditions, such as in a CO<sub>2</sub> incubator.
  - Examples of chemicals/vapors filtered include alcohols (ethanol and methanol), alkanes (decane, heptane, hexane), aromatics (toluene, xylene, benzene, styrene), and olefins (cyclohexane).

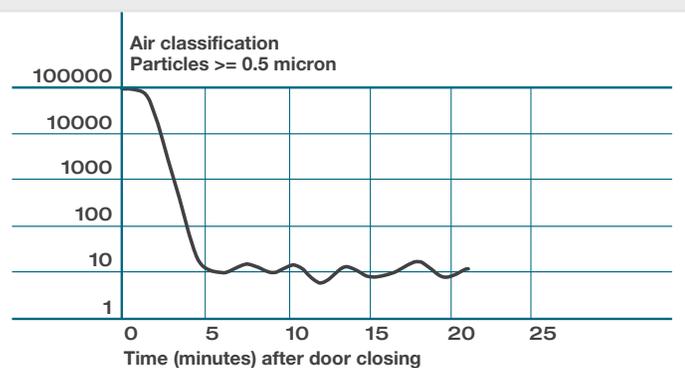
**Uniform direct heat Steri-Cult chamber**



**Class 100 (ISO Class 5) air quality**



Product yields and reliability can be affected by airborne contamination, costing you time and money. Particulates are reduced to cleanroom levels, minimizing the risk of product loss and downtime.



### Air quality defined ▲

Federal Standard 209E and International Standard ISO 14644-1 define air quality classifications (e.g., Class 1, 10, 100 and ISO Class 1, 2, etc.). The Federal Standard classification number is the maximum allowable number of particles 0.5 microns and larger per cubic foot of air. ISO Class 5 correlates most closely to Federal Standard Class 100.



HEPA/VOC filter ▲

# Minimize the risk of contamination

## With advanced features

### On demand sterilization cycle

For event based sterilization with proven reliability, there is no substitute for high temperature to eradicate unwanted microbial contaminants. The Steri-Cult incubator incorporates a convenient automatic sterilization program at 140 °C, to simplify your cleaning procedures.

### Easy to use

- Activate program with the touch of a button. Thermo Scientific™ Enviro-Scan™ Messaging Center guides you through the entire process to avoid any errors.
- Simply remove the HEPA filter and RH and IR sensors prior to activating the cycle.

### Fast

- Convenient overnight sterilization with limited downtime (approximate cycle length 14 hours).
- Post-cycle cleanup is not required, saving time. The incubator returns to your regular operating conditions at the end of the cycle.

### Safe

- Audible alarm activates if the outer door is opened during the cycle and the temperature is 60 °C (140 F) or greater, ensuring safety in the lab.
- Access code prevents accidental initiation of the cycle or changes to the operating parameters.

### Effective

Unlike UV decontamination systems and manual disinfection processes, heat sterilization destroys all forms of microbial contamination easily and with certainty.

### External humidification system

- Humidification water supply is located outside the chamber, reducing the risk of waterborne contamination in the culture area.
- No water pan to check or handle, no relying on a mechanical switch on a humidity pan to warn you that water is low.
- At-a-glance water level monitoring eliminates the need to open the incubator's outer and inner doors, reducing the risk of contamination.
- Blue backlighting attracts your eye and serves as a subtle reminder to check the humidity supply (light blinks if water is low or water fill bottle is empty).



### The cycle starts with the press of a button!

During the heat sterilization process, the microprocessor control/ monitoring system's message center guides you through the cycle with start-up and cycle status messages. The three sterilization cycle phases are heat, sterilizing (hold), and cool.

#### 1 – Heat phase

Incubator is ramping to the heat sterilization temperature

#### 2 – Sterilizing phase

Chamber has reached the sterilization temperature and all microbial life is destroyed

#### 3 – Cool phase

Incubator is cooling to normal operating temperature; you are then prompted to replace the HEPA filter and sensor, if applicable

#### 4 – Sterilization temperature profile



◀ Snap-open humification chamber provides convenient access to the water fill bottle, ensuring ease of maintenance and less disturbance to your cultures.

1



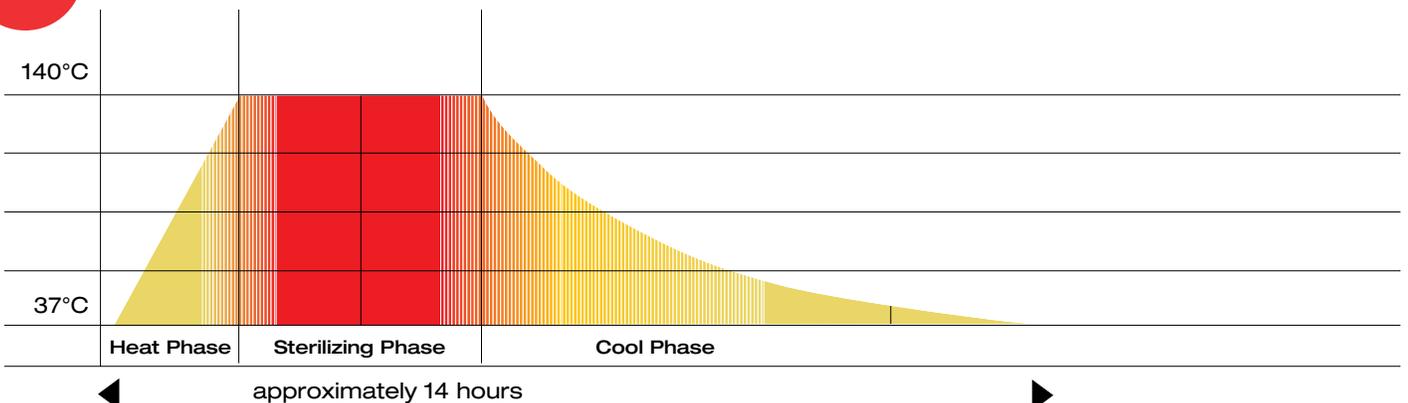
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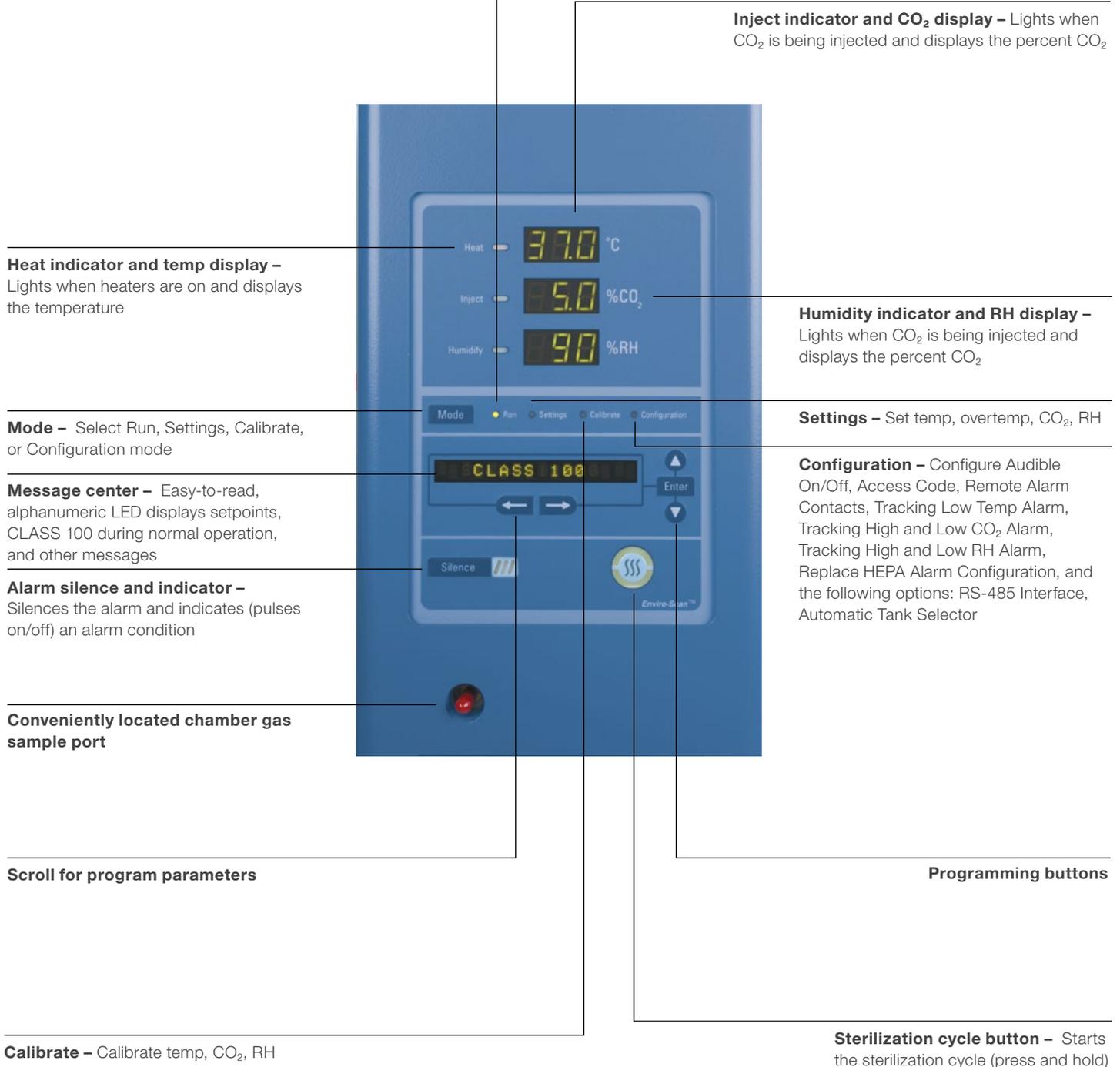
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# Easy-to-use control panel

## Touchbutton simplicity

Displays Temp, CO<sub>2</sub>, and RH, includes handy programming controls, and provides the peace of mind of audible/visual alarms and a silence button.

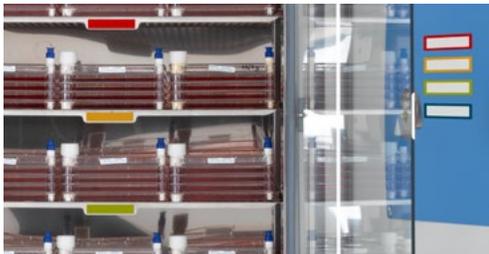
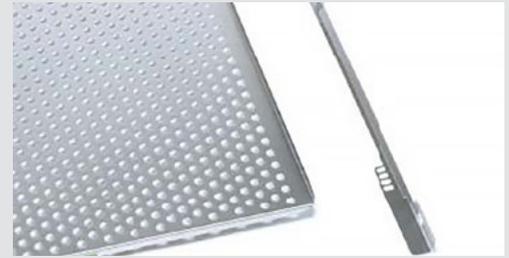


# Options and accessories

## Customize your incubator

### Easy gliding shelving system with “Soft Stop”

Centralized pull point requires less effort to slide shelves out. “Soft Stop” indicates when the shelf is fully extended so you know when to stop sliding the shelf forward.

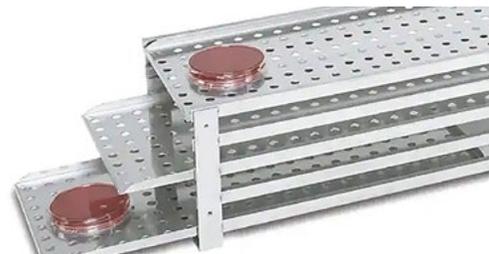


### Color-coded inventory management

Our unique inventory management kit includes five color-coded magnets<sup>1</sup> and shelf labels. You can establish an organized inventory system, which is especially helpful when sharing the incubator. The reusable magnets on the inside of the outer door allow you to write (with a dry erase marker) and correlate notes to samples on a specific shelf, easily making changes as needed.

### Sealed inner glass door kits

The inner glass door kits minimize fluctuations in temperature, CO<sub>2</sub>, and RH during door openings. The small sealed inner doors feature gaskets and latches for a tight fit and maximum sample protection. Glass construction ensures high visibility of your sample.



### Mini shelf racks

The mini shelf racks with three adjustable shelves each are designed for space efficiency and easy access to your sample.

### Combine the sealed glass door kits with our mini shelf system

Using mini shelf racks with inner glass door kits allows you to slide the shelves through a specific door opening, eliminating the need to handle large shelves. This rack and door combination provides efficient, easy access to small amounts of your sample before you move to the benchtop.



### Handy, tilt-out storage pocket

Pocket on the front of the incubator can be used to keep inventory magnets, markers, a manual, etc. within easy reach.

<sup>1</sup> To color code more than five shelves, order Replacement Inventory Management Kit No. 1900166

## Accessories – order information

### Forma Steri-Cult CO<sub>2</sub> incubator accessories<sup>1</sup>

Description	Cat. No.
<b>Filters<sup>2</sup></b>	
Replacement HEPA filter	760207
HEPA filter replacement kit, includes a HEPA and one in-line filter	1900160
HEPA <sup>2</sup> VOC filter	760208
HEPA <sup>2</sup> VOC filter replacement kit, includes the HEPA <sup>2</sup> and one in-line filter	1900161
<b>Door kits and shelving</b>	
<i>Sealed inner glass door kits (replace the existing inner glass door), include separate glass doors with gaskets and latches</i>	
Three doors for model 3307 (3308), factory installed	1900169
Six doors for model 3310 (3311), factory installed	1900170
Three doors for model 3307 (3308), customer installed <sup>3</sup>	1900269
Six doors for model 3310 (3311), customer installed <sup>3</sup>	1900270
<i>Mini shelf racks, include three shelves and five shelf channels with 1.3" (3.3 cm) spacing, may be used with or without inner door kits</i>	
Rack with shelves for inner door kit No. 1900169 and 1900269, max.: 3 racks per model 3307 (3308) Rack dimensions: 11.8"W x 6.6"H x 19.8"F-B (30.0 cm x 16.8 cm x 50.3 cm) Usable shelf space: 10.6"W x 19.6"F-B (26.9 cm x 49.8 cm)	1900171
Rack with shelves for inner door kit No. 1900170 and 1900270, max.: 6 racks per model 3310 (3311) Rack dimensions: 8.6"W x 6.6"H x 19.8"F-B (21.8 cm x 16.8 cm x 50.3 cm) Usable shelf space: 7.4"W x 19.6"F-B (18.8 cm x 49.8 cm)	1900172
<i>Reinforced shelves</i>	
Electropolished stainless steel reinforced shelf 11.4 cu. ft. (322.8 L)	192104
<b>Roller dollies and floor stands</b>	
<i>Roller dollies, heavy-duty, powder coated steel base with dual-wheel, swivel locking casters and leveling feet; raise unit 3.0" (7.6 cm) off the floor</i>	
For one or two (stacked) model 3307 (3308)	1900162
For one or two (stacked) model 3310 (3311)	1900163
<i>Floor stands, heavy-duty steel with adjustable leveling feet, raise unit 6.5" (16.5 cm) off the floor</i>	
For one or two (stacked), model 3307 (3308)	1900164
For one or two (stacked), model 3310 (3311)	1900165
Two-stage CO <sub>2</sub> gas regulator with barbed connection and shutoff valve	965010
Gas guard kit, includes two external and one internal outlet, and a harness, factory installed	1900153
Wall clamp for a CO <sub>2</sub> bottle, includes cylinder holder with web strap	950316
CO <sub>2</sub> / O <sub>2</sub> IR sensor	50145789
IR gas tester with travel case (for advanced calibration and testing purposes for CO <sub>2</sub> model)	50121515
IR gas tester interface kit	50122015
<b>Data outputs (select one), factory installed</b>	
RS-485 interface	1900152
4-20 milliamp	191761
0-5 V analog	191762
0-1 V analog	191763
<b>Miscellaneous accessories</b>	
Replacement inventory management kit, includes five color coded labels and magnets	1900166
Sealed modular incubator chamber, purge with any gas mixture to create a "mini-incubator" inside your incubator for unusual gas and temperature controlled experiments, dimensions: 12.0" (30.5 cm) circular chamber, 4.7" (11.9 cm) high	190043

<sup>1</sup> Accessories are customer installed unless indicated otherwise. We will also manufacture custom accessories to meet your specific requirements. Contact us for details.

<sup>2</sup> HEPA and HEPA<sup>2</sup> filters are rated a minimum 99.97% efficient at 0.3 microns. Filters are easily replaced without tools.

<sup>3</sup> Must be installed by qualified personnel

## Remote monitoring system

The Thermo Scientific™ Smart-Vue™ Pro System is a precisely engineered remote monitoring and data logging solution to enhance sample security and help prevent unnecessary losses while meeting strict regulatory requirements.

Learn more at [thermofisher.com/smartvuepro](http://thermofisher.com/smartvuepro)



### Remote monitoring system<sup>1</sup>

	Description	Region	Cat. No.
<b>Module (Duo)</b>	Smart-Vue Pro Duo 915MHz only. Delivered with two 3.6 V lithium batteries, one sensor mounting kit, one mounting holder, one antenna and one 1.5 m/5 ft. flat cable.	USA, Canada	SVPHWMOD012
	Smart-Vue Pro Duo 868MHz only. Delivered with two 3.6 V lithium batteries, one sensor mounting kit, one mounting holder, one antenna and one 1.5 m/5 ft. flat cable.	Europe	SVPHWMOD022
<b>Module (Quattro)</b>	Smart-Vue Pro Quattro 915MHz only. Delivered with two 3.6 V lithium batteries, two sensor mounting kit, one mounting holder, one antenna and two 1.5 m/5 ft. flat cables.	USA, Canada	SVPHWMOD014
	Smart-Vue Pro Quattro 868MHz only. Delivered with two 3.6 V lithium batteries, two sensor mounting kit, one mounting holder, one antenna and two 1.5 m/5 ft. flat cables.	Europe	SVPHWMOD024
<b>Gateway</b>	Smart-Vue Pro LoRaWAN 915 MHz platform-enabled Ethernet/Wi-Fi connectivity receiver with universal power supply	USA, Canada	SVPHWRLGW001
	Smart-Vue Pro LoRaWAN 865-868* MHz platform-enabled Ethernet/Wi-Fi connectivity receiver with universal power supply	Europe	SVPHWRLGW002
<b>Sensor (CO<sub>2</sub>/temp/rH)</b>	OCEASOFT Smart Triple Point Sensor for CO <sub>2</sub> , temperature, and relative humidity, CO <sub>2</sub> : 0.5/9.9%. Temp: 0/+50 °C, RH: 0/99%, calibrated at 5% CO <sub>2</sub> /37 °C/80% RH	All regions	SVPSENCSS001

<sup>1</sup> Not available in all countries or regions. Frequencies that are approved for use are country-specific. 865–868 MHz is approved for use in most European markets, and 915 MHz is approved for use in North American markets. Please consult your local representative for more details.

## Product specifications

### Forma Steri-Cult CO<sub>2</sub> incubator specifications

Temperature	
Control	±0.1 °C @ 37 °C (98.6 F)
Range	5° C over ambient to 50 °C (122 F)
Sensor	Thermistor
Controller	Microprocessor
Setpoint	Digital
Display	Digital LED
Readability & Setability	0.1 °C
Uniformity	±0.2 °C @ 37 °C (98.6 F)
Temperature safety	
Sensor	Thermistor
Controller	Microprocessor
Setability	0.1 °C
CO <sub>2</sub>	
Control	±0.1% @ 5.0%
Range	0-20%
Calibration	Auto-zero
Inlet pressure	15 PSIG (1.0 bar)
Filter	0.2 micron, disposable
Sensor	Dual beam IR
Controller	Microprocessor
Display	Digital LED
Readability & setability	0.1%
Tracking alarm	User programmable high/low
Controlled RH	
RH	Ambient to 95% RH, non-condensing
Humidity control	±2.0%
Sensor	Capacitive
Controller	Microprocessor
Readability & setability	1%
Humidity reservoir	1.0 gal. (3.8 liters)
Tracking alarm	User programmable high/low
Fittings	
Drain port	3/8" barbed with shutoff
Access port	1.4" (3.6 cm) with removable silicone plug
CO <sub>2</sub> inlet	1/4" hose (barbed)

Exterior dimensions	
Width (3307/3308)	35.0" (88.9 cm)
Width (3310/3311)	43.0" (109.2 cm)
Height	39.4" (100.1 cm)
F-B	27.0" (68.6 cm)
Interior dimensions	
Width (3307/3308)	20.8" (52.8 cm)
Width (3310/3311)	28.8" (73.2 cm)
Height	32.8" (83.3 cm)
F-B	20.6" (52.3 cm)
Shelves	
Standard, maximum	5, 22
Shelf details	
Shelf dimensions	3307/3308 17.7" x 19.9" (45.2 cm x 50.5 cm)
Shelf dimensions	3310/3311 25.7" x 19.9" (65.5 cm x 50.5 cm)
Construction	Perforated stainless steel
Surface area	3307/3308 2.4 sq. ft. (0.2 sq. m) per shelf
Surface area	3310/3311 3.6 sq. ft. (0.3 sq. m) per shelf
Loading	50 lbs. (22.7 kg), stationary
Construction	
Interior volume	3307/3308 8.2 cu. ft. (232.2 liters)
Interior volume	3310/3311 11.4 cu. ft. (322.8 liters)
Interior	Type 304 mirror finish, stainless steel
Exterior	18 gauge, cold-rolled steel, powder coated
Inner door	1/4" (0.6 cm) fully tempered safety glass with cam action latch
Outer door gasket	Four-sided, molded, magnetic vinyl
Inner door gasket	Feather, silicone

## Specifications continued

### Unit heat load

#### Typical operation

3307	824 BTUH (242 Watt)
3310	848 BTUH (249 Watt)
3308	902 BTUH (265 Watt)
3311	926 BTUH (272 Watt)

#### Sterilization cycle operation

3307	2472 BTUH (727 Watt)
3310	2544 BTUH (748 Watt)
3308	2706 BTUH (796 Watt)
3311	2778 BTUH (817 Watt)

### Electrical

3307	115 V, 50/60 Hz, 10.5 FLA (operating range 90-125 V)
3310	115 V, 50/60 Hz, 11.5 FLA (operating range 90-125 V)
3308	230V, 50/60 Hz, 5.4 FLA (operating range 180-250 V)
3311	230 V, 50/60 Hz, 5.9 FLA (operating range 180-250 V)
Power switch	2 pole
Convenience	75 Watts maximum (receptacle matches cabinet voltage)
Plug	115V: NEMA 5-15P plug
	230V: CEE 7/7 plug
Alarm contacts	Deviation of temp, CO <sub>2</sub> , RH, and power failure; accessed using RJ11 jack on rear of unit
Data outputs (opt.)	RS-485, 0-1 V, 0-5 V, 4-20 milliamp (select one)

### Weight

Net	3307/3308 330 lbs. (149.7 kg)
	3310/3311 410 lbs. (186.0 kg)
Shipping (motor)	3307/3308 445 lbs. (201.9 kg)
	3310/3311 490 lbs. (222.3 kg)





**Product order information**

Capacity	Voltage	Cat. No.
8.2 cu. ft. (232.2 liters)	115	3307
8.2 cu. ft. (232.2 liters)	230	3308
11.4 cu. ft. (322.8 liters)	115	3310
11.4 cu. ft. (322.8 liters)	230	3311



**For cell and gene therapy research and manufacturing**

Thermo Scientific™ Forma™ Steri-Cult CO<sub>2</sub> Incubator Cell Therapy Systems (CTS™) Series consists of our popular Steri-Cult models with enhanced features, extensive documentation, and certifications. Our compliance services support your Good Manufacturing Practice (GMP) needs.

The CTS Series helps you get up and running faster, stay compliant, navigate regulatory audits, and stay on schedule as you take your cell therapy from discovery to clinical research and commercial manufacturing.

Learn more at [thermofisher.com/ctsforma](https://thermofisher.com/ctsforma)



Product



Documentation package



Compliance services

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