

# CO<sub>2</sub> Incubator



# CellXtra CO2 INCUBATOR

Unicorn CellXtra CO2 incubator plays an important role in maintaining a stable temperature, pH level, humidity and sterility. It provides you with unsurpassed natural simulation to ensure optimum growth conditions for your cell culture at all time.

Compared with the other incubators, CellXtra is equipped with an extra HEPA filter to keep the chamber at ISO Class 5 cleanliness, offering top notch protection that can withstand the test of time to securely culture your precious cells.

We understand that every lab requires different specifications, various options from air/water jacketed to 90°C moist heat decontamination/UV sterilization etc. for customer to choose from.

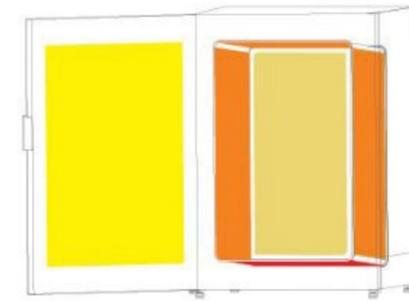
That why Unicorn CellXtra becomes the first choice of researchers in field of application include tissue engineering, in vitro fertilization, neuroscience, cancer research and other mammalian cell research.

## FEATURES:

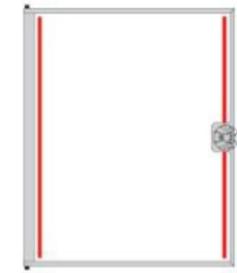
- 7-inch intuitive colorful touch screen for easy operation
- 90°C moist heat decontamination cycle has been proven in deactivating normally resistant microorganism
- Fast temperature, CO2, and humidity recovery without overshoot.
- CARBOCAP® drift free IR sensor responds extremely fast to CO2 concentration change.
- Best CO2 and temperature uniformity inside the chamber compared with other suppliers
- Patented and unique design of two HEPA filters to keep the chamber at ISO Class 5 cleanliness.
- Blower automatically stops when the door is opened, to minimize mixing of chamber and room air
- Air flows gently around culture plates, causing no disturbance to cell culture.
- Direct heating for glass door preventing the condensation and possible contamination
- With automatic zero calibration function
- Ductwork, plenums, and shelves are removable without tools
- Door switch monitoring function
- Automatic gas cylinder switchover system
- Stackable design to save your valuable lab space
- Humidity display to safely monitor the humidifying process
- Intelligent data and event logger records all incubator parameters for on-screen call
- Level 4 password function, including visitor, operator, administrator and senior administrator
- Three power-off mode selection: power-off recovery, stop and restart
- Comprehensive user-configurable alarms for all parameters
- Curve display function, real-time data and historical data printing function
- RS232 and RS485 communication interface



## Optimum Temperature Control

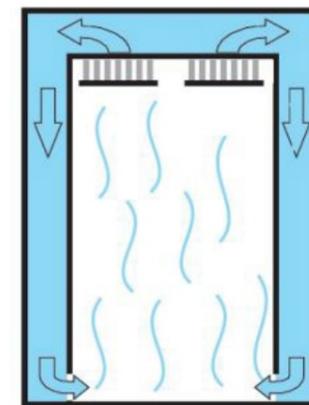


A reliable air jacketed heating system combined with PT1000 temperature sensors ensures high precision with homogenous heat distribution in the interior.



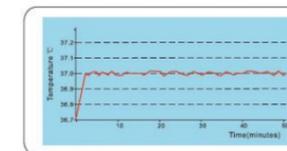
Outstanding dynamics ensure short recovery times and balance out any fluctuations caused by door open for Unicorn Medical CO2 incubators. This provides reliable protection at any time, particularly for sensitive cultures.

## Two Internal Recirculating HEPA Filters

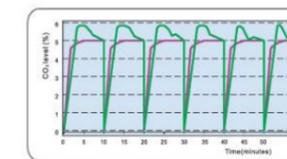


Eliminate external pollution

The pollution brought in by opening the door can be instantly purified, and the cultivation is safer

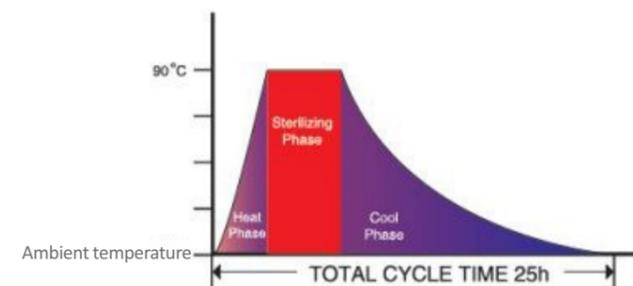


Stable temperature provides the most trusted and cell culture environment



After the door is opened, the CO2 concentration quickly recovers to a constant value, and the cells grow in the most appropriate pH environment

## 90°C Moist Heat Decontamination



Microbial name	Quantity before disinfection	Quantity after disinfection
Staphylococcus aureus	4.73×10 <sup>6</sup>	0
Bacillus subtilis	1.61×10 <sup>6</sup>	0
Pseudomonas aeruginosa	2.52×10 <sup>6</sup>	0
Staphylococcus epidermidis	2.45×10 <sup>6</sup>	0
Aspergillus niger	1.40×10 <sup>6</sup>	0
Enterobacter faecalis	2.10×10 <sup>6</sup>	0
Escherichia coli	1.55×10 <sup>6</sup>	0

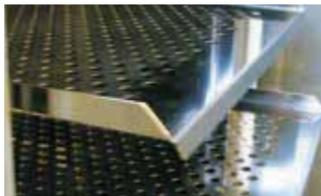
According to the third party's test, the 90 degree high temperature and high humidity sterilization mode effectively achieves the thorough sterilization effect, which reduces the damage to the electrical components of the incubator

# DETAILS



## CARBOCAP® drift free IR sensor

- The world well known IR sensor responds extremely fast to gas concentration changes so as to ensure a stable PH level in cell cultivation.
- IR based sensors are not affected by water vapor, dust or most chemicals
- The single-beam dual wavelength technology (one reference and one measurement) ensures a drift-free sensor that does not require calibration by the user. Precisely tuned sensor and software result in fast recovery of CO2 without overshoot.
- This ensures uniform CO2 level even with frequent incubator door openings



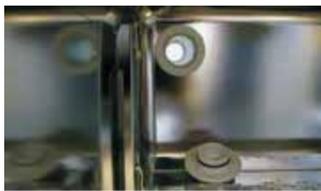
## Shelves

- Easy-to-install and dismantle stainless steel shelf system that also prevents slippage.
- According to different chamber volume, the shelves heights can be easily adjusted or increased.
- Prevent slippage design When the experimenters place a large number of cell culture bottles or petri dishes and draw the shelves half out of the chamber, the shelves still can keep level to prevent the culture fluid overflow.



## Integral internal chamber

- Stainless steel chamber 100% sunken corner, no dead angle and facilitate the experimenter's clean.
- Chamber and shelves are stainless steel by special electroplating treatment, it avoid corrosion and easy to clean and sterilization. No dead corner prevents microorganisms contamination.



## Test hole

- It facilitate experiment operation and test temperature, achieving integrity of the experiment.
- When the incubators inside needs auxiliary equipment, the electric wires or control wires can go through the test hole to inside the chamber, then it doesn't need to guide the wires from the door and affect the whole chamber seal.



## Intelligent interface

- Replace traditional button operation with touch screen interface.
- It can display on time performance curve. You can check the temp., humidity (option) and CO2 concentration three group curves changes at the same time. And abnormal alarm and door open or close message.
- With various alarms for example: Door unsealed, over or low temp. alarms, over or low CO2 concentration alarms, high temperature sterilization alarm, sensor broken etc.
- RS-485 can be installed for long distance remote control. (Options)



## Magnetic door gasket

- Outer door uses magnetic door seal, inner glass door and chamber use silicone rubber seal, it ensures inside fully seal.
- The reliable latch design of the inner glass door ensures the tightness of the box and the cell culture environment.



## Inner glass door

- This door is convenient for experiment observe. The back of glass door has door switch. When the glass door open, the machine can cut down heating and air inlet valve and close the cycle fan. It prevents temp. CO2 concentration out of control.

## Constant humidity

- Water pan precisely heated by base heater to provide high humidity
- Gentle airflow over water surface accelerates humidity recovery up to 95% while interior walls remain completely dry.
- The high air humidity prevents cell cultures from drying out and also keeps the osmolarity constant in the culture medium.

## Dual HEPA filtration in chamber

- Chamber air is continuously filtered by two HEPA filters to keep the chamber at ISO Class 5 cleanliness after the door is closed for 5 minutes
- All contaminants from the room air and chamber air are filtered and only clean air is recirculated inside the chamber.



## Microbe HEPA filter

- Co2 access port equips micro biological HEPA filter, it can filters diameter  $\geq 0.3\mu m$  Particles like CO2 gas bacteria and dust, the efficient reaches to 99.99%.



## Co2 inlet control system

- We supply pressure release valve together with the equipment. It can control the pressure stable.
- The system has pressure protection function, it prevents over pressure or low pressure to the pipes that affect stable gas supply



Stable air pressure ensures a more stable supply of carbon dioxide gas to the incubator



Automatic conversion device for gas cylinder, automatically judge and automatically convert the gas cylinder when the gas is used up

## Technical Parameters:

Name	Air jacket CO2 incubator		Water jacket CO2 incubator
Model	CellXtra-185UV	CellXtra-185MH	CellXtra-185WI
Control interface	7 inch LCD touch screen	7 inch LCD touch screen	7 inch LCD touch screen
Temperature control mode	PID control mode	PID control mode	PID control mode
Temperature control range	Ambient +5°C~60°C	Ambient +5°C~60°C	Ambient +5°C~60°C
Temperature display resolution	0.1°C	0.1°C	0.1°C
Temperature stability	±0.1°C	±0.1°C	±0.1°C
Temperature field uniformity	±0.4°C	±0.4°C	±0.4°C
Heating power	800W	800W	800W
Timing function	0-999.9hours	0-999.9hours	0-999.9hours
Internal Dimensions	L540 x W510 x H680mm	L540 x W510 x H680mm	L540 x W510 x H680mm
Dimension	L710 x W695 x H985mm	L710 x W695 x H985mm	L710 x W695 x H985mm
Volume	185L	185L	185L
CO2 measurement principle	Infrared (IR) detection	Infrared (IR) detection	Infrared (IR) detection
CO2 control range	0-20%	0-20%	0-20%
CO2 display resolution	0.001	0.001	0.001
CO2 supply	0.05~0.1MPa is recommended	0.05~0.1MPa is recommended	0.05~0.1MPa is recommended
Relative Humidity	Ambient humidity ~92% ±3%	Ambient humidity ~92% ±3%	Ambient humidity ~92% ±3%
HEPA filtration	ISO 5 level, 5 minutes	ISO 5 level, 5 minutes	ISO 5 level, 5 minutes
Sterilization method	Ultraviolet lamp	90°C High temperature and humidity	Alcohol wipe
HEPA filter quantity	2	2	2
Microbe HEPA filter quantity	1	1	1
Working environment temperature	5°C~ 35°C	5°C~ 35°C	5°C~ 35°C
Power supply	AC 220V±10%, 50Hz/80Hz	AC 220V±10%, 50Hz/80Hz	AC 220V±10%, 50Hz/80Hz
Weight	150KG	150KG	165KG

## CellXplorer CO2 INCUBATOR

Cell culture is one of the vital procedures in a life sciences laboratory. A major concern in this field is the existence of contaminants. Unicorn CellXplorer CO2 incubators are optimized for high-value samples including hard-to-grow and contamination-sensitive media/reagent.

CellXplorer series CO2 incubators adopts a 180°C/140°C dry heat sterilization system, proven effective in killing normally resistant fungi, bacterial spores, and vegetative cells that may contaminate the workspace. This sterilization cycle is more convenient as it eliminates the need to remove chamber components during sterilization. Our incubators with touchscreen control panels deliver superior usability, rapid cleaning, and effortless maintenance while keeping the tradition of outstanding environmental stability and precise performance.

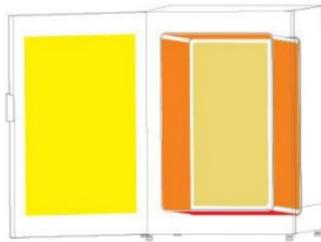
CellXplorer CO2 incubator with high heat sterilization has more design configurations suitable to meet the demands of every cell culture laboratory. 80 liters, 180 liters, 240 liters different capacities are compliant with most of the user's needs, including neuroscience, stem cell research, In Vitro fertilization, tissue engineering, cancer research and mammalian cell research.

## FEATURES:

- 5-inch intuitive colorful and bright LCD touch screen
- 140°C/180°C dry heat sterilization cycle offers simplified decontamination protocols to protect your valuable cultures
- A reliable air jacketed heating system combined with PT1000 temperature sensors
- Fast temperature, CO2, and humidity recovery without overshoot.
- CARBOCAP® drift free IR sensor ensure a fast respond and accurate CO2 monitoring
- In-chamber fan gently and evenly distributes clean, humidified air throughout the chamber
- Best CO2 and temperature uniformity inside the chamber compared with other suppliers
- Entire chamber air volume is filtered by the HEPA filter to achieve ISO class 5 cleanliness
- Blower automatically stops when the door is opened, to minimize mixing of chamber and room air
- Front door heating preventing the condensation formed in the inner glass door and possible contamination
- Unique, seamless, deep-drawn interior chamber reduces any areas where contamination could accumulate.
- Easy-to-clean, coved corner interior with convenient access port
- No special tools required for assembly and disassembly of interior components.
- All gas injection lines are filtered via HEPA filter to remove impurities and contaminants before being injected
- Door switch monitoring function
- Filtered air circulates across the 304 stainless steel humidity pan to accelerate the humidifying process.
- Intelligent data and event logger records all incubator parameters for on-screen call
- Comprehensive user-configurable alarms for all parameters
- RS232/RS485 communication interface
- Stackable design to save your valuable lab space

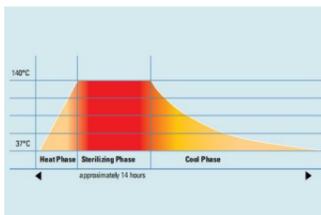


# Optimum Temperature Control



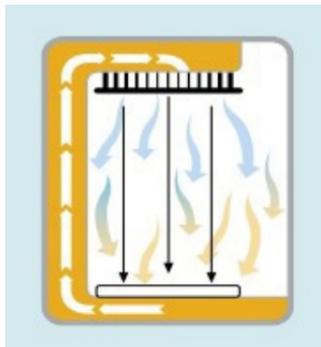
## 6-side direct heat chamber

- The 6-side heating method, with efficient, high-performance heating systems distributed on the surface of each chamber, provides a highly uniform temperature distribution throughout the incubator, resulting in a more uniform temperature throughout the incubator and a uniform temperature field of  $\pm 0.3^{\circ}\text{C}$  within the chamber after stabilization
- Standard right side door opening, left and right door opening direction according to demand
- Polished stainless steel one-piece interior chamber with rounded corners for easy cleaning
- Flexible combination of detachable pallets, independent humidity pan can be removed or put in according to demand
- Built-in fan in the chamber gently blows air for even distribution within the chamber, ensuring a consistent culture environment
- Stainless steel shelves and brackets are durable and can be removed without tools in 1 minute



## 140°C high heat sterilization

- On-demand 140°C high heat sterilization simplifies cleaning and eliminates the need for separate autoclaving and reassembly of components, increasing efficiency
- 140°C high heat sterilization system effectively eliminates bacteria, mold, yeast and mycoplasma from the interior cavity surface
- ISO Class 5 HEPA filtered airflow system
- Chamber's built-in HEPA air filtration system provides uninterrupted filtration of air throughout the chamber
- ISO Class 5 air quality within 5 minutes of closing the door
- Provides continuous protection by reducing the ability of airborne contaminants to adhere to interior surfaces



## Active airflow technology

- Incubators are equipped with fan-assisted airflow circulation, enabling rapid recovery. Our airflow pattern is specifically designed for uniform distribution of some key environmental conditions (temperature, gas exchange and humidity)
- An in-chamber fan gently blows filtered, moist air throughout the chamber, ensuring that all cells have the same environmental conditions and do not lose excessive water regardless of their location



## HEPA efficient filters

The CO<sub>2</sub> gas quality is an important factor to judge cell culture in the CO<sub>2</sub> incubator. HEPA high efficient filters can filter bacteria and dust in the air. It eliminates cross contamination from outer air to incubator chamber air and keep the chamber inside aseptic. Close the door for 5 min, inside air can fast resume to hundred grade clean. HEPA air filter is easy to disassemble without any special instruments.



## Microbe HEPA filter

CO<sub>2</sub> access port equips micro biological HEPA filter, it can filter diameter  $\geq 0.3\mu\text{m}$  Particles like CO<sub>2</sub> gas bacteria and dust, the efficient reaches to 99.99%.

## Co2 inlet control system

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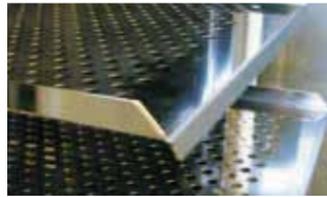
## Inner glass door

This door is convenient for experiment observe. The back of glass door has door switch. When the glass door open, the machine can cut down heating and air inlet valve and close the cycle fan. It prevents temp. CO<sub>2</sub> concentration out of control.

## Constant humidity

Water pan precisely heated by base heater to provide high humidity. Gentle airflow over water surface accelerates humidity recovery up to 95% while interior walls remain completely dry. The high air humidity prevents cell cultures from drying out and also keeps the osmolarity constant in the culture medium.

# DETAILS



## Shelves

- Easy-to-install and dismantle stainless steel shelf system that also prevents slippage.
- According to different chamber volume, the shelves heights can be easily adjusted or increased.
- Prevent slippage design When the experimenters place a large number of cell culture bottles or petri dishes and draw the shelves half out of the chamber, the shelves still can keep level to prevent the culture fluid overflow.



## Integral internal chamber

- Stainless steel chamber 100% sunken corner, no dead angle and facilitate the experimenter's clean.
- Chamber and shelves are stainless steel by special electroplating treatment, it avoid corrosion and easy to clean and sterilization. No dead corner prevents microorganisms contamination.



## 304 stainless steel water pan for humidification

- Easy-to-clean 304 stainless steel water pan holds up to 4L of water, ensuring a high humidity environment in the culture chamber. It provides maximum protection for cell and tissue culture and avoids the dangerous formation of condensation, even when the humidity pan generates high humidity at normal room temperature, and is still less likely to generate condensation above the chamber. Turbulence-free chamber ventilation ensures a constant and uniform cell culture environment



## Infrared (IR) CO2 sensor for accurate monitoring

- Infrared (IR) CO2 sensor for stable monitoring when humidity and temperature are less predictable, effectively avoiding measurement bias problems associated with frequent door opening and closing
- Ideal for sensitive applications and remote monitoring, or where frequent opening of the incubator is required
- Temperature sensor with over temperature protection



## 5 inch LCD touch screen

- Intuitive controls for easy operation, instant run curves, historical run curves
- Convenient installation position above the door for easy control, capacitive touch screen with sensitive touch control experience
- Audible and visual alarms, on-screen menu prompts

# Technical Parameters:

MODEL	CellXplorer-80	CellXplorer-180	CellXplorer-240	CellXplorer-80P	CellXplorer-180P	CellXplorer-240P
Control interface	5 inch LCD touch screen					
Temperature control mode	PID control mode	PID control mode	PID control mode	PID control mode	PID control mode	PID control mode
Temperature control range	Ambient +5°C~60°C					
Temperature display resolution	0.1°C	0.1°C	0.1°C	0.1°C	0.1°C	0.1°C
Temperature stability	±0.1°C	±0.1°C	±0.1°C	±0.1°C	±0.1°C	±0.1°C
Temperature field uniformity	±0.3°C @37°C					
Heating power	500W	900W	1000W	500W	900W	1000W
Timing function	0-999.9hours	0-999.9hours	0-999.9hours	0-999.9hours	0-999.9hours	0-999.9hours
Internal Dimensions	L440 x W400 x H500mm	L541 x W508 x H681mm	L630 x W600 x H670mm	L440 x W400 x H500mm	L541 x W508 x H681mm	L630 x W600 x H670mm
Dimension	L560 x W530 x H825mm	L660 x W640 x H1000mm	L800 x W660 x H1000mm	L560 x W530 x H825mm	L660 x W640 x H1000mm	L800 x W660 x H1000mm
Volume	85L	185L	248L	85L	185L	248L
CO2 measurement principle	Infrared (IR) detection					
CO2 control range	0-20%	0-20%	0-20%	0-20%	0-20%	0-20%
CO2 display resolution	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
CO2 supply	0.05~0.1MPa is recommended					
Relative Humidity	Ambient humidity ~95% at 37°C					
HEPA filtration	ISO 5 level, 5 minutes					
Sterilization method	140°C High heat sterilization	140°C High heat sterilization	140°C High heat sterilization	180°C High heat sterilization	180°C High heat sterilization	180°C High heat sterilization
Temperature recovery time	≤10 min (open door 30sec room temperature 25°C set value 37°C)	≤10 min (open door 30sec room temperature 25°C set value 37°C)	≤10 min (open door 30sec room temperature 25°C set value 37°C)	≤10 min (open door 30sec room temperature 25°C set value 37°C)	≤10 min (open door 30sec room temperature 25°C set value 37°C)	≤10 min (open door 30sec room temperature 25°C set value 37°C)
CO2 concentration recovery time	≤5 min (open the door 30sec set value 5%)	≤5 min (open the door 30sec set value 5%)	≤5 min (open the door 30sec set value 5%)	≤5 min (open the door 30sec set value 5%)	≤5 min (open the door 30sec set value 5%)	≤5 min (open the door 30sec set value 5%)
Historical data storage	250,000 messages					
Data export interface	USB interface	USB interface	USB interface	USB interface	USB interface	USB interface
Scalability	Up to 2 units can be stacked					
Working environment temperature	10°C~30°C	10°C~30°C	10°C~30°C	10°C~30°C	10°C~30°C	10°C~30°C
Power supply	115V~230V±10% 50~60Hz					
Weight	68kg	108kg	116kg	68kg	108kg	116kg

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