

ReCO₂ver™

Rapid Recovery Incubator

ABSOLUTE PRECISION.
MAXIMUM PROTECTION.

PRECISION



CONTROL OVER TEMPERATURE,
CARBON DIOXIDE & RELATIVE HUMIDITY

FAST



RECOVERY OF CELL
CULTURE CONDITIONS

MAXIMUM



PROTECTION FOR CELLS

BETTER THAN



ISO CLASS 4 (CLASS 10)
AIR CLEANLINESS

BAKER

Environments For Science™



SafeGARD + GROW





**RAPID RECOVERY
RATES**



**PREVENTION &
CONTAMINATION
CONTROL**



**RELATIVE
HUMIDITY &
CONDENSATION
CONTROL**



**PRECISE &
ACCURATE
PERFORMANCE**

Discover Optimal

The fastest and most precise recovery rates of cell culture conditions available

ReCO₂ver™

RAPID RECOVERY INCUBATOR

Constant, ideal environment for optimal cell growth.

At Baker, it is our job to deliver optimal “Environments for Science™”. Our ReCO₂ver™ and ReCO₂ver™ Plus incubators have been designed with that in mind, providing precision control over the environmental conditions your cells require to thrive while delivering unprecedented recovery over those conditions after they have been interrupted.

Why? Because your work depends on it!



In all scientific research applications, each cell type will benefit from keeping proper physiological cell growth conditions.

Cell culture incubators attempt to mimic physiological conditions, but atmospheric conditions within the laboratory and the environmental parameters incubators attempt to control and are lost with each door opening taking a long time to get back to the growth conditions your work is dependent on. This will impact the integrity of your work.

There are several factors an incubator should control in order to help you achieve optimal cell growth conditions.

Precision in temperature, gas and humidity as well as the rapid **recovery** of those conditions after door openings are crucial for ensuring cells are exposed to a constant environment required for their well-being. These parameters can change very quickly once a door is opened, and it can take a long time for *in vivo*-like conditions to be achieved again.



ACHIEVE OPTIMAL
WITH YOUR RAPID
RECOVERY INCUBATOR



Constant ideal environment for optimal cell growth



BE MORE PRODUCTIVE

Large usable workspace, combined with proprietary technology

User driven features and **ultrasonic humidification** helps increase throughput by solving common problems and eliminating tedious water pan changes. When combining a large interior **useable workspace** with **active humidity control** & our effectively tuned **biodecontamination protocol**, productivity is greatly improved.



IMPROVE VALIDITY & RELIABILITY

Accurate, precise, and stable environmental conditions

With full, finely-tuned control over three variables (CO₂, temperature and relative humidity), you can create more lifelike conditions for your cell cultures to thrive, and improve the validity of your results. Accurate, precise and stable environmental conditions make your results more reproducible.



FLEXIBLE AND VERSATILE

Determine what level of protection or control your work requires

User-defined configurations with plenty of options and accessories that allow you to determine the level of control and protection your research requires.



PROTECT PRECIOUS CELL CULTURES

Provide unparalleled protection of your work

Whether growing a few plates of microorganisms for a small laboratory or managing a large-scale tissue culturing operation, your success hinges on how well your incubator prevents contamination. ReCO₂ver™ and ReCO₂ver™ Plus draw on Baker's deep knowledge of air containment and contamination control technologies to provide unparalleled protection of your work.



EXPLORE MORE QUESTIONS

Find out how cells respond in challenging conditions

Work with sensitive cell lines. With ReCO₂ver™ and ReCO₂ver™ Plus, you can provide the unique conditions required to explore more research questions than ever before.





EXPLORE MORE QUESTIONS

Unmatched control and accuracy

ReCO₂ver™ provides users with precise, rapid control, as well as industry-leading stability, uniformity and recovery rates. Even with a full load, cell cultures grow consistently from shelf to shelf, for dependably high-quality, robust cells on every plate.

InteliCELL™ proprietary PID control algorithm provides pinpoint, user-defined control over all three parameters (temperature, CO₂ and relative humidity), with an incredibly fast recovery not seen in other CO₂ incubators.

Uniform vertical downflow air circulation enhances the uniformity and stability of conditions inside the chamber without disturbing or dehydrating cell cultures.



OPTIMAL GROWTH CONDITIONS



MAXIMUM PROTECTION

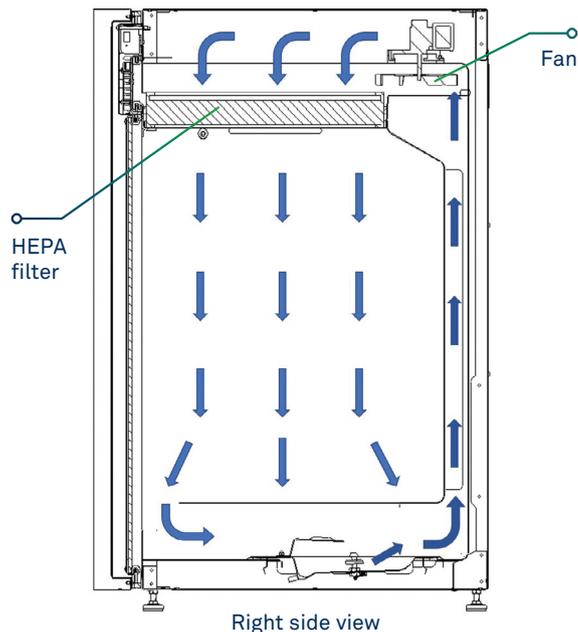


Protect cells from contamination

At Baker, we know how to prevent and control contamination. We're leaders in the design and development of contamination control technology, innovating solutions in biosafety and biocontainment for more than 70 years. Our ReCO₂ver™ design draws on this extensive experience to protect precious cultures against the threat of contamination from a wide variety of sources, for a wide variety of scientific applications.

Baker Clean Air Technology

Uniform downward airflow inside ReCO₂ver™.



Air flows down to the chamber bottom, under the false floor, passing over the humidity source. The fan pulls air up behind the rear baffle to the top of the unit, where it passes through a full-face HEPA filter, delivering clean, better-than-ISO Class 4 (Class 10) air.

OPTIMAL
CONTAMINATION
PREVENTION & CONTROL

FEATURE	BENEFIT
Vertical, downward airflow	Delivers better-than ISO Class 4 (Class 10) air to the chamber, keeping cultures safe from contaminants by sweeping them away and trapping them in the full-face HEPA filter. This uniform downflow also helps reduce variations in temperature throughout the chamber, without drying out sensitive cultures
Large, full-face HEPA filter	Captures contaminants introduced into the chamber after door opens. ReCO ₂ ver™ takes less than 2 minutes to provide better-than-ISO Class 4 (Class 10) air – the fastest filtering rate of any incubator model
Crevice-free interior with coved corners	Easy to clean and won't harbor potential contaminants
Fogless interior door with heated frame	Provides a crystal-clear view to every shelf, reducing the need for door openings, when contaminants are most likely to enter the chamber
Superior condensation control	Eliminates wet spots where contaminants can grow and spread
Ultrasonic humidity delivery system	Eliminates the water pan altogether, along with the risk of contaminants that typically go with it
H ₂ O ₂ Biodecon Method	Enhances productivity (<4hrs) and provides an effective kill rate (6 log reduction)
Direct heat	Rapid recovery of temperature back to set point



A DIFFERENCE YOU CAN SEE

Watch how ReCO₂ver™'s air filtration system performs against a leading competitor!

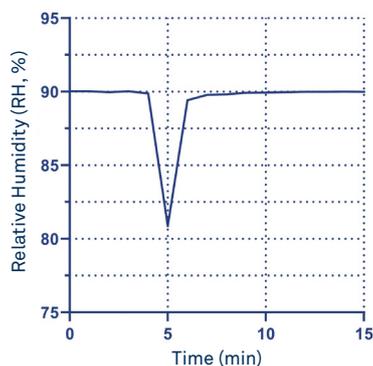




FAST RECOVERY RATES

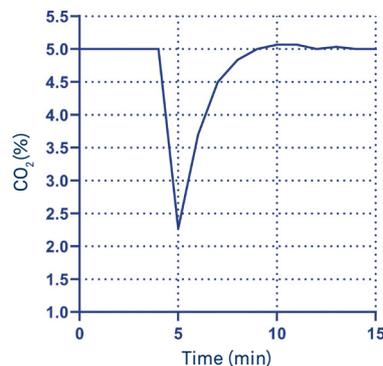
RH RECOVERY

4
MINS



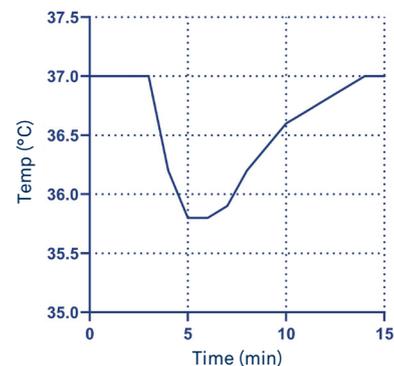
CO₂ RECOVERY

5
MINS



TEMP RECOVERY

6
MINS



InteliCELL™ - meet your incubator's brain

InteliCELL™ is the sophisticated, proprietary PID control algorithm that allows you to define and sustain the optimal conditions for your work. It's beyond smart technology – it's the intelligence that drives ReCO₂ver™'s unparalleled control, stability and uniformity.

By accounting for factors that other technologies leave as unknown, InteliCELL™ consistently maintains the setpoints that you define, giving you ultimate control with minimal effort.

The core of InteliCELL™'s design is a closed feedback loop that works just like your nervous system, sensing and responding to changing conditions in a controlled way.

Highly precise temperature, CO₂ and humidity sensors continuously sample interior conditions, feeding data back to the control algorithm. InteliCELL™ evaluates this data and instantly responds by making small, controlled adjustments to maintain set points. This feedback loop allows ReCO₂ver™ to provide consistent conditions even across different ambient laboratory environments. InteliCELL™ is also self-tuning and adaptable to changing laboratory environments and usage rates.

With all that it does for your cell cultures, InteliCELL™ truly is the brain behind ReCO₂ver™.

Simple operation with customizable control



All operations are accessible through an intuitive, user-friendly touchscreen interface that gives you full control over incubator functionality.



EASY TO USE & INTUITIVE

- Pressure-sensitive touchscreen works with gloved hands
- Real-time status updates and alarm conditions on the home screen
- One-touch access to set point screens
- Customizable alarms and security settings
- Graphic data log displays for at-a-glance monitoring
- USB download of data and event logs
- Helps assist in providing compliance with 21 CFR Part 11 electronic record-keeping requirements

Active humidity and condensation control

No gimmicks. Most CO₂ incubators only allow users to control two variables (temperature and CO₂) and employ clever gimmicks for passively managing condensation formation. True active humidity and condensation control gives users the ability to define relative humidity in a simple, two-touch process.

At Baker, we know that temperature, CO₂ and relative humidity (RH) are each vital to providing optimal environmental conditions for cell growth.

Our unique PID control algorithm, IntelliCELL™, combined with highly precise sensor technology, allows ReCO₂ver™ to actively and quickly control humidity and prevent condensation from forming, even at higher levels of RH (>90%).

To learn more about how Baker delivers active humidity and condensation control under typical (up to 90%) and higher (90%-95%) levels of humidity, download our white paper.



PRECISION CONTROL OVER
TEMPERATURE, CARBON
DIOXIDE & RELATIVE HUMIDITY

LEARN MORE

Download the relative
humidity white paper!



Eliminate the “Edge Effect”, save money for your lab

The “Edge Effect” has been plaguing researchers for far too long, forcing them to use 60% - or accepting the limitations – of a 96 well plate. Passive and imprecise humidity control experienced in most incubators result in the uneven evaporation of culture media among the outer and inner ring of wells in a microtiter or multi well culture plate.

Due to tightly controlled humidity modes and the quick recovery of cell culture conditions, ReCO₂ver™ incubators have been proven to virtually eliminate this phenomenon within 96 and 384 well plates. In addition to protecting sensitive cell cultures, this technology will save time and money for most laboratories while increasing their productivity!

Loss due to Edge Effect: basic usage

		% plate used	# plates	\$ saved (plates)	Time imaged	\$ saved (image fee)	Savings per year per researcher
Basic	96 well	62%	10	-	10hr	-	-
	384 well	60%	5	-	5hr	-	-
ReCO₂ver™	96 well	100%	7	\$15.03	6.25hr	\$150.00	\$8251.50
	384 well	80%	4	\$11.78	3.77hr	\$49.20	\$3049.00

Loss due to Edge Effect: small screening lab 20 plate screen in 96 well plates, 4 screens per year

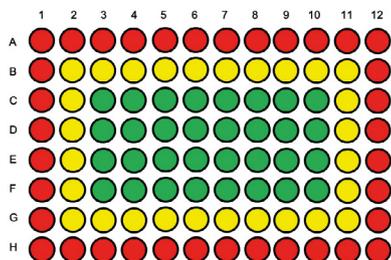
	% plate used	# plates	\$ saved (plates)	Time imaged	\$ saved (image fee)	Savings per year
Basic	62%	20	-	20hr	-	-
ReCO₂ver™	100%	13	\$35.07	12.5hr	\$500.00	\$2140.28

*Assuming: Imaging facility fees = \$40/hour, and tissue culture treated microtiter plates.



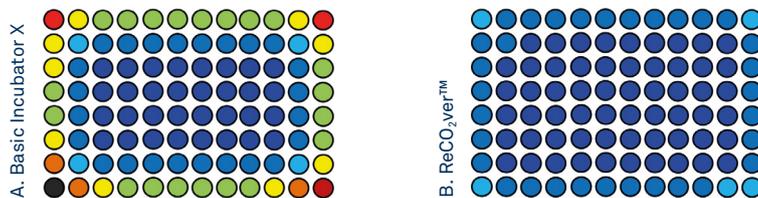
THE EDGE EFFECT

In this example, the outer ring of a 96 well plate (red) experiences > than 80% in evaporative media loss within each well; the inside 60 wells (“Inner 60”) shown here in yellow and green become more viable, yet will still experience evaporative loss of up to 50%.

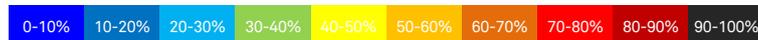


96-WELL 100 μ L MEDIA CALCULATED PERCENT LOSS

The percent loss is color coded as per the loss indicator below. (A) shows the Edge Effect in a Basic Waterpan Incubator and (B) shows no evaporation effects in a ReCO₂ver™ incubator.



Loss indicator

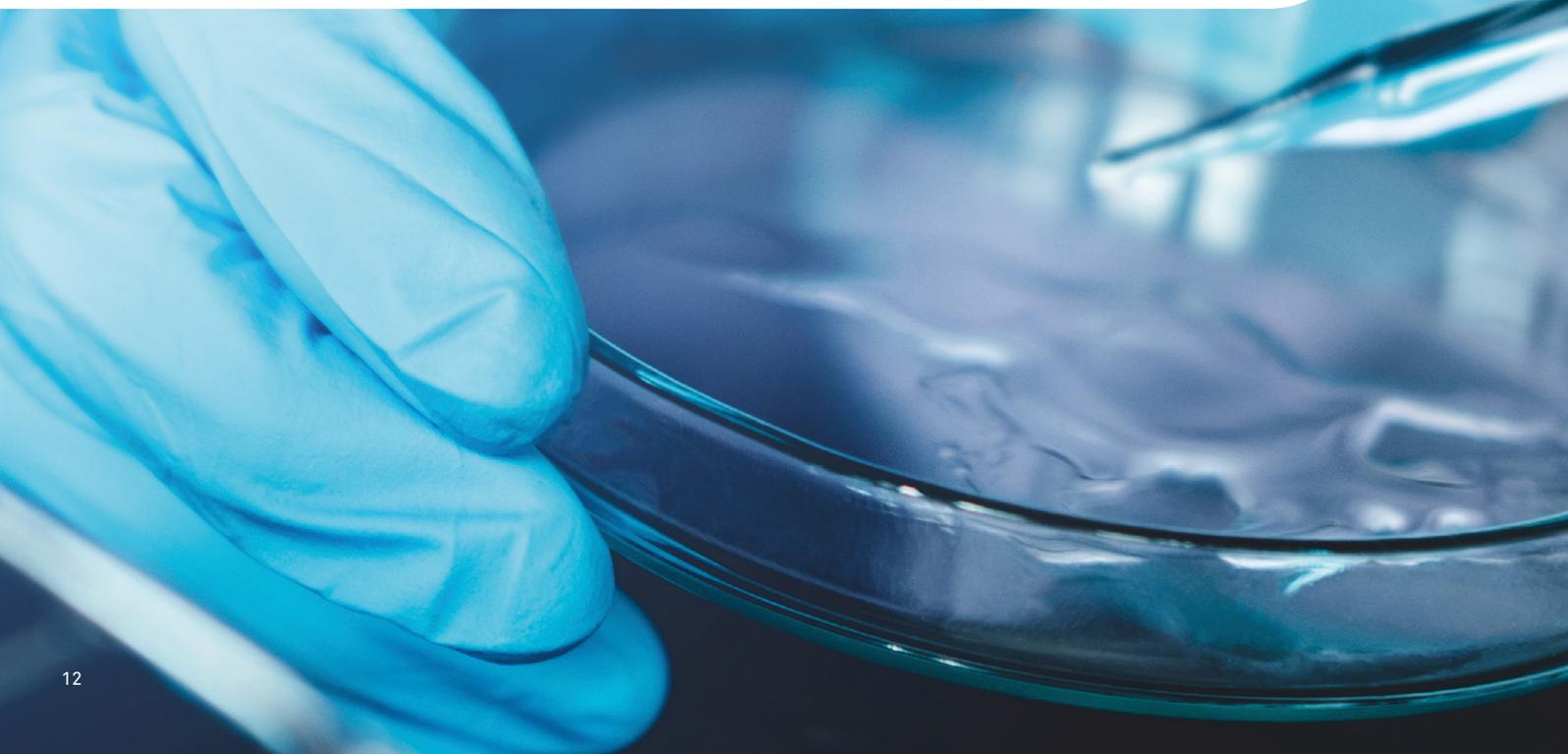


Control & kill microbial contaminants with UV and Hydrogen Peroxide

ReCO₂ver™ offers two protocols designed to reduce the spread of potential contaminants and to kill a wide variety of contaminating microorganisms.

Customizable UV light and optional biodecontamination cyler offers more effective decontamination of microbes that may grow in the internal water reservoir. A customizable timer allows you to follow your institution's protocols.

Vaporized hydrogen peroxide (H₂O₂) biodecontamination kills a wide variety of microorganisms within the entire chamber. Because ReCO₂ver™'s H₂O₂ protocol is completed within 4 hours (vs. 12 hours for high temperature methods), you'll experience far less downtime than is typically required by most methods of decontamination, increasing the productivity of your laboratory. All removable interior components are autoclavable.



H₂O₂ vapor: for effective biodecontamination

Decontaminating methods are often evaluated based on their ability to achieve a log reduction in the number of microorganisms that can potentially contaminate precious cell cultures. The greater amount of contaminants removed, the safer your cell cultures become.

At Baker, we strive to achieve the maximum amount of protection for your research. In combination with the full face HEPA filter and standard UV light, the vaporized H₂O₂ biodecontamination protocol for ReCO₂ver™ has been developed to prove effective and fast biodecontamination of your incubator.

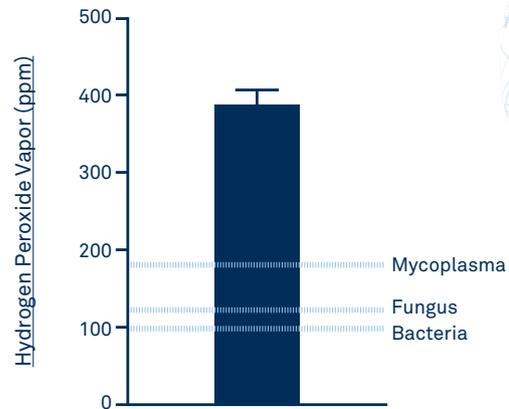


LEARN MORE

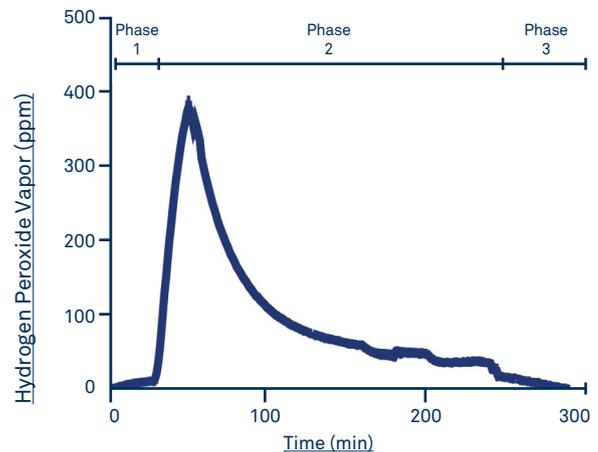
See our test report on the research and testing behind ReCO₂ver™ H₂O₂ biodecontamination protocol.

Compared with other methods that employ high temperatures, directed UV light or ineffective concentrations of vaporized H₂O₂, the ReCO₂ver™ protocol provides a more effective means of killing more forms of microbial life, including vegetative bacteria, bacterial spores, fungi, fungal spores and viruses.

Test results



Average peak hydrogen peroxide concentration (ppm) shown with required concentrations to kill bacteria, fungus and mycoplasma.



Average hydrogen peroxide concentration (ppm) over time throughout the biodecontamination protocol highlighting the different phases: warm up, nebulization, destruction, and fan off.



Improved productivity and user experience

ReCO₂ver™ has been designed around your needs, to help solve common problems and improve productivity in your laboratory.



RAPID PRODUCTIVITY



OUTSTANDING CONDENSATION CONTROL

ReCO₂ver™ is the only incubator available that provides a virtually condensation-free interior at relative humidity levels above 90%. No more time spent mopping up after dripping doors.

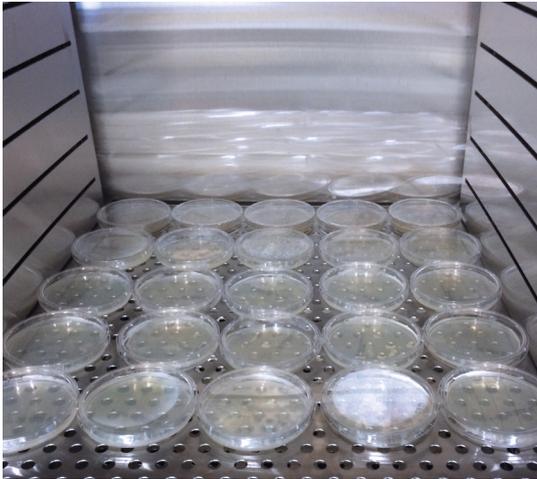
Personnel are protected from exposure to potentially dangerous contaminants during cleanup, as well as accidental slips.

UNIFORM GROWTH CONDITIONS – LEAVE THE SWEET SPOT BEHIND

Featuring one of the largest usable workspace among incubators this size, ReCO₂ver™ delivers uniform and stable downflow air throughout the entire chamber. This eliminates your need to find the ‘sweet spot’ of the incubator, where conditions are believed to be most favorable for cell growth. Cell cultures grow consistently throughout the entire chamber – even next to the door.

Standard features and options

ReCO₂ver™ includes standard features and options designed to enhance your research.



Spacious interior shelves hold up to 25 stacks of 90mm plates to help you maximize space.

- Auto water refill allows easy water replenishment and changes without opening the door. The exterior water reservoir is easy to monitor and fill, taking only a few minutes every 1-2 weeks.

- USB flash drive and alarm status relay provides for easy extraction of key data and integrates with your facility's monitoring system.

- UV to protect internal water reservoir from contamination.

- Standard alarm contacts and optional communication interfaces (analog 4-20mA signal and RS485/422 and RS232 serial ports) make ReCO₂ver™ adaptable for various facility monitoring requirements.

- Onboard UV and optional H₂O₂ biodecontamination provide flexibility to destroy a wide variety of contaminants that infiltrate your laboratory.

FOGLESS INTERIOR DOOR

The difference is clear – the solution was simple. ReCO₂ver™'s heated interior door (controlled by IntelliCELL™) eliminates condensation on the glass door that obstructs a clear view into the chamber.

Now you can see what is happening with your cell cultures without opening the door – every time.

MOVE BEYOND THE WATER PAN

Ultrasonic humidification technology (nebulizer delivery system) ReCO₂ver™ eliminates the need for a water pan, freeing your time typically spent on tedious water changes for more productive activities.

ReCO ₂ ver™		ReCO ₂ ver™ Plus		
Performance Specifications				
Model Number	REC 602		REC 602 -Plus	
Humidity Delivery	Ultrasonic (Nebulizer)			
Heat Type	Direct Heat			
External Dimensions	26.9" W x 26.5" D x 40.5" H (683mm W x 673mm D x 1029mm H)			
Internal Dimensions	19.9" W x 21.9" D x 33.5" H (505mm W x 556mm D x 851mm H)			
Usable Interior Volume / Capacity	5.92 ft3 (0.168 m3) / 275 90mm plates			
Usable Shelf Area / Max Shelves	18.6" W x 20.1" D (472mm W x 511mm D) / 12 shelves (4 standard)			
Weight	250 lbs. (114 kg.) / Shipping Weight 310 lbs. (141 kg)			
Environmental Performance				
Temperature Control Range	13°F (7.0°C) above ambient - 131°F (55.0°C) (increments of 0.2°F / 0.1°C)			
Temperature Accuracy	+/-0.1°C			
Temperature Uniformity	+/- 0.25°C			
Temperature Recovery Time	Within 1°C of set point (37°C) in 6 minutes			
CO ₂ Control Range	0.0% - 20.0% (increments of 0.1%)			
CO ₂ Accuracy	+/-0.15%			
CO ₂ Recovery Time	Within 0.2% of set point (5%) in 5 minutes			
Contamination Control				
Relative Humidity Control Range	Two operating modes: Up to 90%; 90%-95%			
Relative Humidity Accuracy	+/-3%			
Relative Humidity Recovery Time	Within 3% of set point (90%) in 4 minutes			
Contamination Prevention	Expansive HEPA filter providing better-than-ISO Class 4 (Class 10) air cleanliness			
Biodecontamination Methods	UV Light	UV Light & H ₂ O ₂ (Standard)		
ReCO ₂ ver™		ReCO ₂ ver™ Plus		
Features	Standard	Optional	Standard	Optional
HEPA Filtration (better than ISO Class 4)	✓		✓	
Active Humidity Control	✓		✓	
Active Temperature Control	✓		✓	
Active CO ₂ Control	✓		✓	
Alarm Contacts	✓		✓	
UV Light	✓		✓	
Automatic Water Refill System	✓		✓	
Direct Heat (rapid recovery of temperature back to set point)	✓		✓	
H ₂ O ₂ Biodecontamination		✓	✓	
Copper Interior Components		✓		✓
CO ₂ Supply Automatic Switchover		✓		✓
RS232/485 or 4-20mA		✓		✓

Accessories



- Rolling Cart
- Stacking Kit
- CondoCell® Starter & Add-on Kits
- Additional Shelves (7 additional, 12 max)
- Two-Stage CO₂ Gas Tank Regulator (adjustable to max of 15 psi)
- Portable CO₂ Meter & Portable pH Meter
- CO₂ Analyzer Fyrite® Kit
- Refill CO₂ Analyzer Fluid Kit
- Seismic Restraints
- Preventive Maintenance Kit
- Dry In-Line Filter

ADDITIONAL EQUIPMENT COMPATIBILITY



CondoCell®

Portable device that allows transport from/to the incubator while maintaining the cell culture environment.



Etaluma Lumascope

Live cell imaging.



PhO₂ Box

Cell Culture Chamber with CO₂ and O₂ control.



ReCO₂ver™

RAPID RECOVERY INCUBATOR

Protect your cells with the fastest recovery of cell culture conditions available



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