

# Инкубатор Cell 188 CO<sub>2</sub>

## Технические характеристики

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The Cell@ 188 CO<sub>2</sub> incubator, equipped with an "on-demand" decontamination cycle, is designed to provide a stable and convenient environment for cell and tissue culture, taking into consideration the most stringent needs of the cell biologists, for both continuous and batch cultures.

The Cell@ 188 maintains an accurate CO<sub>2</sub> gas percentage, uniform temperature and a consistently high level of humidity providing a stable culturing environment, even for most critical applications like IVF and Hybridoma cultures.

#### Best in its class: large usable capacity and maximum space for your cultures

At the very heart of the Cell@ 188 CO<sub>2</sub> Incubator is the large internal capacity of 188.6 litres, corresponding to an actual available space of 140 litres, unmatched in the industry, thanks to a specially designed rack and 4 shelves system that provides a usable surface of 0.23 sqm per shelf.

#### Best in its class: culturing environment guaranteed

The accurate and precise temperature is maintained by means of 4 independently controlled and validated Direct Heating" elements, located on all 6 sides of the chamber, able to measure and control temperature down to 0.1 degree of the set value. Precise CO<sub>2</sub> percentage is maintained by a state-of-the-art iR sensor and controller system, that is independent from the humidity of the culturing environment. Humidity is passively maintained at 95% , thanks to a 2.5 litres stainless steel humidity tray, heated by the base heater. Finally, the unit has a built-in "on-demand" decontamination cycle programme, for absolute safety.

#### Comfort for your cultures is guaranteed ...Precise control and recovery of set temperature

The accurate and precise temperature is maintained by means of a 4 sections independently controlled and validated Direct Heater system. A total of 73 meters of heating elements ensure even heating of all internal surfaces (chamber, front frame and door inner side); on top of this, a seven RT curve matched thermistors control system can measure and control temperature within to 0.1°C of the set value. Over-temperature protection is independent of the controls and inhibits all heaters when the temperature raises by 1 degree above the programmed value. The recovery of set temperature, after 15 seconds door opening, occurs within 5 minutes, thus protecting cultures against thermal shocks ( see Graph)

#### Precise control and recovery of set CO<sub>2</sub>percentage

The CO<sub>2</sub> percentage is maintained within the chamber, thanks to a state-of-the-art controller, with a solid state infrared sensor with atmospheric auto zeroing of CO<sub>2</sub>. Mixing of air with inlet CO<sub>2</sub> gas is gently achieved, thanks to the complete absence of a forced air fan circulation system, enhancing a fast recovery of set CO<sub>2</sub> percentage within 5 minutes, following a 15 seconds long door opening (see Graph)

#### Fully automatic 12 hours decontamination cycle

A fully tested "on demand" automatic decontamination cycle, heating up to 125°C, is a standard feature assuring your peace of mind when you start your culturing cycle. The beauty of the system is that there is no need to remove any parts or fixtures whatsoever. The total decontamination cycle is run overnight, with a 1.5-2.5 hour temperature ramp up time, a 4 hour exposure time and a 5-7 hour temperature ramp down time, totalling between 11-12 hours in average, depending upon the room temperature. At the end of the cycle, normal control of the CO<sub>2</sub> is automatically resumed, and the only action to be performed is the addition of sterile water into the humidity tray before start up.

#### A number of features designed to ease your work

\*The direct heated, single door, magnetic closure Cell@ 188 CO<sub>2</sub> Incubator (Italian design) assures to the users an easy and quick access, without any loss of operational stability and performance.

\*Choosing the double door design, with fully sealed inner glass door and outer heated door, the CO<sub>2</sub> incubator can be equipped with an optional 4 or 8 inner glass door system to give you unmatched choice.

\*Left opening door option, factory installed, allows for optimal placement of the CO<sub>2</sub> incubator in an expensive and crowded lab space.

\*Optional multi-position shelf rack set, allows up to 8 shelves to be used, optimizing the area available for culture vessels.

\*Solid shelves are supplied as standard to provide even surface for the culture vessels however, at no extra cost, the traditional perforated shelves can be supplied.

\*Fanless construction, with gentlest possible air movement by thermal convection, ensures low contamination risk, simplifies cleaning and decontamination and allows for long life of incubator components.

\*Seamless, electro-polished, Stainless Steel 304 internal chamber (with fully rounded corners and no internal projections or holes) makes it easy to clean, corrosion resistant and minimize contamination risk.

\*Large 27.5 mm access port allows user to supply power to small instruments placed on the interior, or allows any other utilities access to the incubator chamber.

#### SHELVING SYSTEM

Shelf racks	Easy to assemble , 304 stainless steel construction, with high temperature plastic spacers
Shelf type	Solid (non perforated) stainless steel shelves (perforated available as option)
Shelf dimensions (W x D) mm	510x 455 mm, with 150 mm height above each shelf
Shelf surface area, Sq meter	0.23 m2 ( 2.76 sq ft)
Capacity: standard - maximum	4-8 shelves

#### ALARM SYSTEM

Chamber status alarm	Fully programmable, audio-visual, auto reset when chamber conditions resume
Incubator function alarm	Fully automatic alarms to advise failure in heaters or sensors
Alarm events Log	Up to 500 alarm events held in memory on a rolling basis, displayed on 2 x 24 display, showing programmed value, actual value, time and duration of alarm event

#### POWER REQUIREMENTS

Voltage	220-240 V, 50/60 Hz
Rated Power	1.5 KW
Power to maintain 37° C	< 0.1 kW

#### EXTERNAL CONNECTIONS

RS 232 output	Operating conditions, alarms and events data output
RS 232 interface	Standard supply, for remote access
Contact for remote alarm	Volt-free, for wiring to a remote external alarm device or alarm system (BMS)

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