Haier Biomedical
Intelligent Protection of Life Science

CO_2 Incubator

HCP-80/168/258

Product Features

- Uniform and Stable Temperature
- Precise CO_2 Concentration
- 180°C Dry-heat Sterilization
- Smart IoT (optional)

Haier Biomedical USA

Website: www.haiermedical-usa.com

Haier Biomedical
Intelligent Protection of Life Science

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CO_2 Incubator

Haier Biomedical IoT enabled CO_2 incubator with 180°C dry heat sterilisation provides a safe and secure reproducible growth environment for cell cultures.

HCP-80

HCP-168

HCP-258

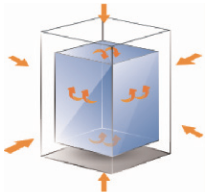
IR Sensitive Control of CO_2 Concentration

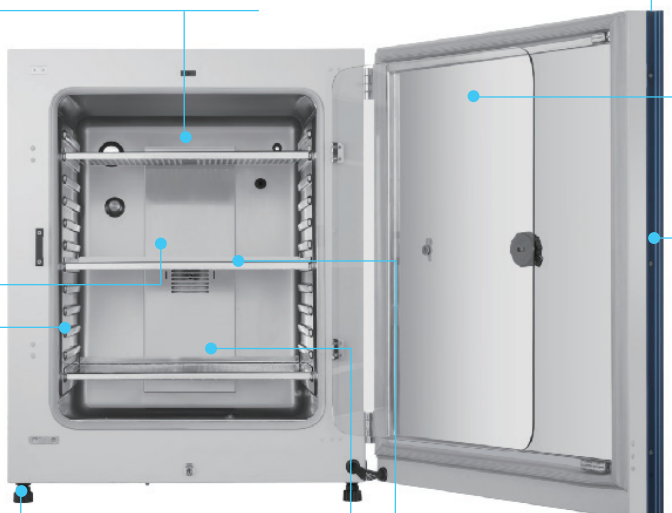
The new IR sensor with high temperature resistance of 190°C is based on the NDIR measurement principle and uses a silicon MEMS transmitter to replace the traditional light source. It can withstand more than 300 dry heat sterilization cycles with a service life of up to 15 years and control accuracy of ±0.1%. German IR infrared sensing technology, zero drift, without need for calibration, drift less than 0.3% within 2 years

7-inch Touchscreen

Displays CO_2 concentration and temperature data in real time. 15 years of data can be exported via USB

6-sided heating sketch





Inner Door

The door ensures the inside of the cabinet is sealed

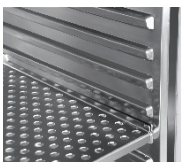
Outer Door

The heated outer door prevents the condensation of the inner door

Internal Partition

Safety anti-slip design of pull out shelves

304 Stainless Interior



Adjustable Feet

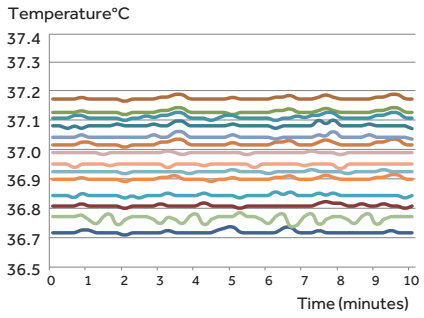
It can be double stacked

180°C Dry-heat Sterilization

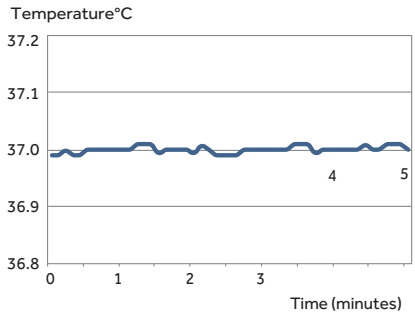
All internal components do not need to be disassembled and do not need separate autoclave sterilization to prevent secondary pollution. Cleaning consumables are not needed, one-button sterilization. German INFRARED CO_2 sensor, NDIR light source technology drift < 0.3% within two years. The unit can withstand sterilization at 180°C with no disassembly and no manual calibration

Precise and Accurate Temperature Control

Controls the temperature precisely, within ±0.1°C, with six-sided heating based on the fuzzy PID control principle,to provide a stable temperature to ensure the normal growth of cells throughout their life cycle.



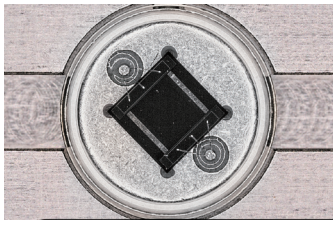
Uniformity of 27 measuring points <±0.3°C



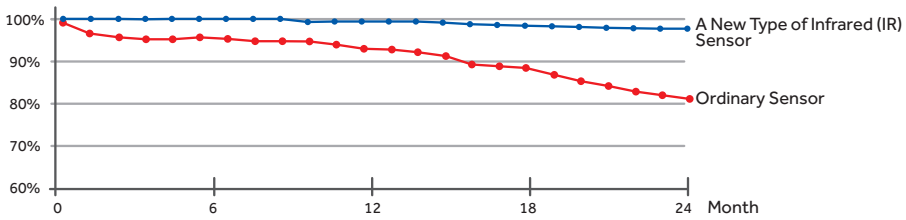
Central consistency point <±0.1°C

Precise CO_2 Concentration Using New IR Sensor Control Technology

Haier Biomedical's new IR Sensor technology uses NDIR measurement principles and withstands high temperatures of 190°C. The silicon MEMS transmitter can carry out more than 300 dry heat sterilization cycles to extend the service life to 15 years. Built-in temperature and humidity compensation technology reduces the impact of changes in humidity and temperature without the need for calibration after the high temperature sterilization. Five point calibration yields a higher measuring accuracy, sensitivity with less drift.



Silicon-based mems transmitter



Sketch of drift less than 0.3%

Fast Environment Recovery for Optimal Cell Growth

Adopting active air flow control technology, and based on the fuzzy PID control principle, the parameters can be restored without overshoot. After opening the door for 30 seconds, the temperature and CO_2 concentration can be quickly restored within 4 minutes. Even if multiple users share a CO_2 incubator and frequently open and close the door, the stability and uniformity of the incubator can be ensured.

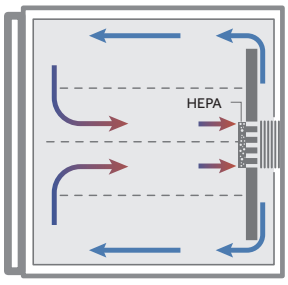
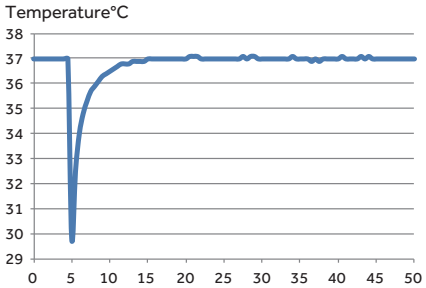
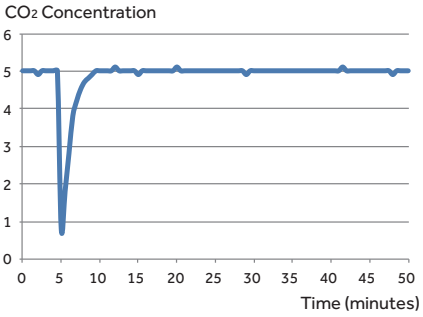


Illustration of purified airflow



Temperature recovery curve
(door open for 30s)



CO_2 concentration recovery curve
(door open for 30s)

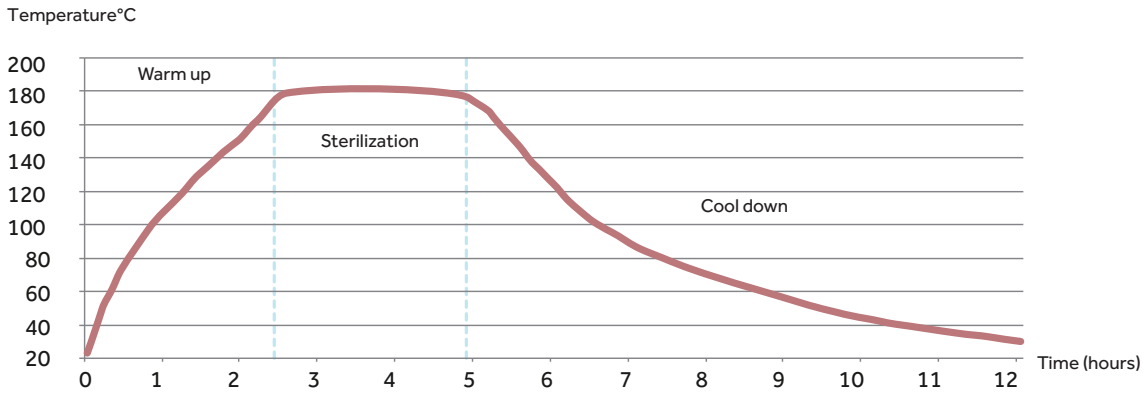
180°C Dry-Heat Sterilization Technology Minimises Contamination

180°C Dry-Heat Sterilization Technology Minimises Contamination

Easy and effective sterilization of microorganisms including bacteria, fungi and microplasma with strong resistance, at 180°C high temperatures without the need for consumables. Simply press the "sterilization key" to activate and complete the sterilization process automatically in just 12 hours.

Delivers sterility level within the chamber of all surfaces to meet WS/T367-2012 standards.

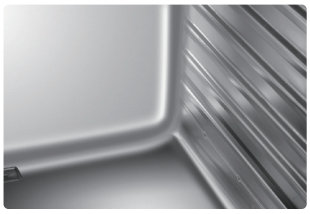
All components are sterilized during the process, there is no need to dissemble internal components (including CO_2 sensors) and decontaminate separately, thus avoiding secondary pollution.



High Efficiency Microbial Filter

The CO_2 inlet is equipped with a high-efficiency microbial filter, with 99.99% filtration efficiency for particles larger than or equal to 0.2μm in diameter. It can effectively filter bacteria and dust particles in the CO_2 gas line to ensure the safety of experimental results.

Easy to Clean Interior

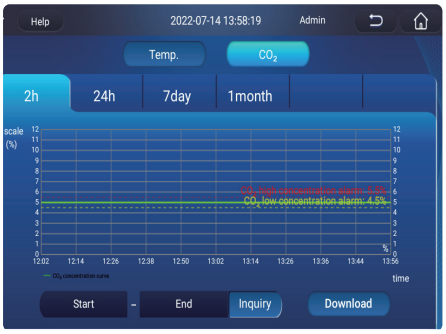


The working chamber is plasma electro polished, stamped stainless steel with wide-arc, laser welded corners. Bracketless shelving design ensures that it is quick and easy to clean.

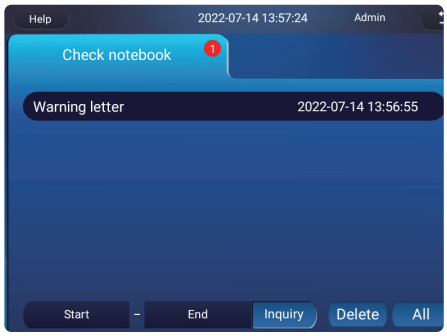
Interactive Intelligent Display with Easy Touch Operation

Touch-sensitive screen with rapid sensing even in rubber gloves. Green indicates normal operational parameters, while a red warning display indicates abnormal, making it easy to view data at a glance. A red warning display and audible buzzer will alarm when water level is low.

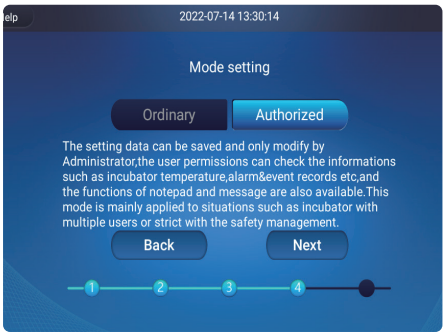
Home screen red warning.



Real-time display of operation data & real-time display of temperature, for CO2 concentration and O2 concentration, and the data during the culture cycle can be viewed at any time.



Announcement function designed for multiple persons to use the same incubator making it clear to all users on important matters.



Operation mode clear management authority: three-levels of authority to ensure the security of data.

Optional : Real-time monitoring

An IoT module with multi-screen interface provides real-time uploadset parameters, operation parameters, operation curves, recordsand event records through the IoT cloud platform. The operation ofincubator can be monitored at anytime and anywhere through computer terminal. Alarm function, and servicefunction are available through an one button touch.

Anti-Condensation Heating System to Reduce Pollution Risk

The door on the CO_2 incubator radiates heat to the inner glass door, effectively preventing the glass door from forming condensation.

The possibility of microbial contamination caused by the condensate water is eliminated.

Intelligent Control of Circulating Air Maintains Uniformity

Automatically adjusts the circulation of the air flow, optimising the air flow to avoid air volatilization of samples and ensuring proper uniformity throughout the chamber.

Comprehensive Safety Alarm System

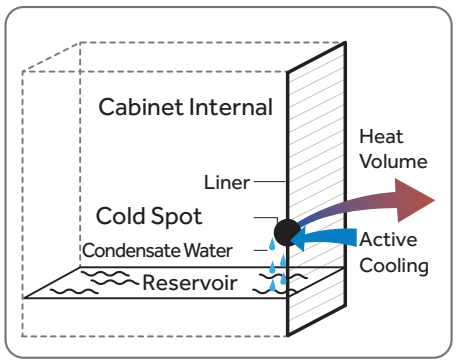
The system ensures the safety of experiments and processes by utilizing an independent temperature alarm system, including a sound light and remote reminder.

Other alarms include CO_2 concentration, door ajar and water shortage.

Innovative and User-friendly Design with Attention to Detail

Safe anti-slip design with pull out shelves.

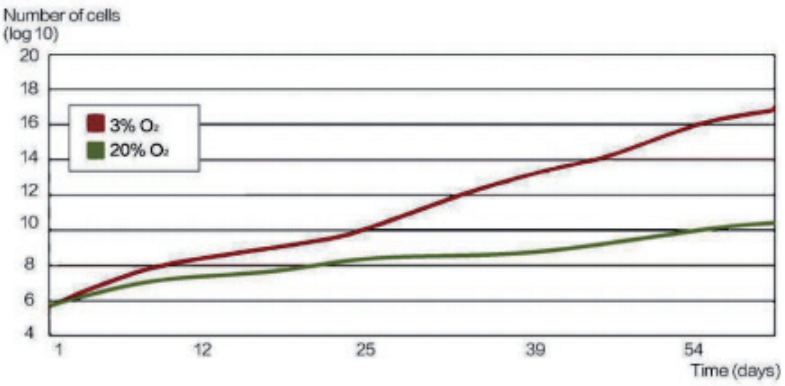
Drainage design



Active heat pipe condensation technology with any condensation directly returning to the reservoir.

Data traceable for 15 years with large storage capacity and data exportable through USB.

Accurate Oxygen Control (optional) for HCP-168



Three or six internal doors are available to reduce gas consumption

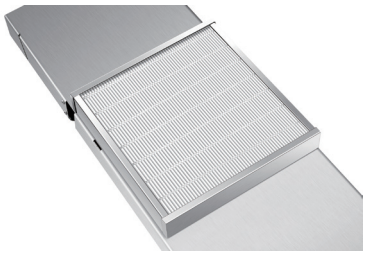
O_2 concentration can be controlled within the range of 1-21% or 5-90%

After opening the door for 30 seconds, the O_2 concentration can recover to 5% in only 8 minutes and 1% in 18 minutes

High precision zirconia O_2 sensor, oxygen control accuracy 0.1%

Advanced and reliable gas solenoid valve, low noise

The Quality of ISO Class 5 Clean Room Can Ensure a Better Cell Growth Environment



The optional HEPA high-efficiency filtration system combined with the unique air duct circulation design can continuously filter pollutants (biological pollutants and suspended particles) in the cabinet, ensuring that the incubator can reach the ISO class 5 clean room within 5 minutes after the external door is closed, which is equivalent to the class 100 environment of the 209 E standard of the united states

Optional Accessories

Name	Material Description
Oxygen Module	Zirconia O_2 sensor, control accuracy: 0.1%; control range: 1-21% or 5-90%
3 Inner Door (for HCP-168/B)	Reduce the temperature, humidity and carbon dioxide concentration in the box after opening the door, and minimize the mutual influence of multiple cultures
6 Inner Door (for HCP-168/B)	Reduce the temperature, humidity and carbon dioxide concentration in the box after opening the door, and minimize the mutual influence of multiple cultures
8 Inner Door (for HCP-258/B)	Reduce the temperature, humidity and carbon dioxide concentration in the box after opening the door, and minimize the mutual influence of multiple cultures
Water Tray	Provides different bottom humidification methods
Roller Base	Easy to move, prevent the ground bacteria contamination
HEPA Filter	Ensure the cleanliness of the cabinet, suitable for users who open and close the door frequently; After opening the door for 30 seconds, the air inside the cabinet can be passed through HEPA filters within 5 minutes and reach ISO 5 clean room quality
Pressure Reducing Valve	Suitable for users with cylinder gas supply
Shelf	Increase the number of samples cultured 4 materials : SUS304 single mirror surface SUS304 double mirror surface tempering glass Pure copper
Humidity Display (for HCP-168/B)	Real time monitoring of humidity inside the box
Cylinder Switching	Supports switching between multiple steel cylinders to ensure uninterrupted air intake into the incubator
Electromagnetic Lock	Important tests can be dedicated by dedicated personnel to ensure test safety
Stacking Bracket	Supports stacking of different volume models up and down, saving laboratory space

Specifications

Model			HCP-80	HCP-80B	HCP-168	HCP-168B	HCP-258	HCP-258B
Type			Air Jacket		Air Jacket		Air Jacket	
Construction	Chamber Volume (L)		80		170		258	
	Interior Chamber		304 Stainless Steel					
	Exterior Chamber		Cold-rolled steel powder coated					
	Access Port		/		35mm Diameter		35mm Diameter	
	Data Outputs		Remote Alarm Contacts, USB, and Optional 4-20mA					
Dimensions	Net/Gross Weight (approx)	kg	75/95		95/130		110/155	
		lbs	165.3/209.4		209.4/286.6		242.5/341.7	
	Interior Dimensions (W*D*H)	mm	400*420*490		490*560*650		570*610*745	
		in	15.7*16.5*19.3		19.3*22*25.6		22.4*24.0*29.3	
	Exterior Dimensions (W*D*H)	mm	625*684*735		714*812*887		794*867*985	
		in	24.6*26.9*28.5		28.1*32*34.9		31.3*34.1*38.8	
	Packing Dimensions (W*D*H)	mm	700*770*910		890*800*1050		870*950*1150	
		in	27.6*30.3*35.8		35*31.5*41.3		34.3*37.4*45.3	
Shelves	Dimensions (W*D)	mm	380*300		473*434		550*484	
	Number Standard/Maximum		3/8		3/11		3/13	
	Max.Load Per Shelf/Total Load	kg	15/45		15/45		15/45	
	Construction		Perforated, Adjustable					
Electrical	Rated Voltage Power Supply (V/Hz)		220-240~50/60	115/60	220-240~50/60	115/60	220-240~50/60	115/60
	Steri-Run Consumption (kw)		0.08 (0.75)		0.095 (1.1)		0.12 (1.2)	
Control	Controller		Microprocessor		Microprocessor		Microprocessor	
	Display		7 "LCD Screen		7 "LCD Screen		7 "LCD Screen	
CO_2	Control Accuracy		0.1%		0.1%		0.1%	
	Range		0-20%		0-20%		0-20%	
	Alarm Range		±0.5%		±0.5%		±0.5%	
	Inlet Pressure		12-17Psi (0.8-1.2 Bar)					
	Gas Purity		≥99.5%					
	Sensor		IR		IR		IR	
	Recovery Time at 5vol. -%/CO_2 for a 30 Second Door Opening* (min)		4		4		4	
	CO_2 Inlet Filter (μm)		<0.2		<0.2		<0.2	
O_2 (Optional)	Control		0.1%		0.1%		0.1%	
	Range		1-21%		1-21%/+5-90%		1-21%	
	Tracking Alarm		±0.5%		±0.5%		±0.5%	
	Inlet Pressure		0.08-0.12MPa		0.08-0.12MPa		0.08-0.12MPa	
	Gas Purity		Min.99.5		Min.99.5		Min.99.5	
	O_2 Inlet		1/8" hose (barbed)		1/8" hose (barbed)		1/8" hose (barbed)	
Alarms	High/Low Temperature		Y		Y		Y	
	Remote Alarm		Y		Y		Y	
	Excessive CO_2 Concentration		Y		Y		Y	
	Water Shortage		Y		Y		Y	
	Sensor Error		Y		Y		Y	
	Door Ajar		Y		Y		Y	
Temperature Parameter	Control Accuracy (°C)		0.1		0.1		0.1	
	Range		Ambient temperature+3-55°C					
	Uniformity (°C)		±0.3		±0.3		±0.3	
	Ambient Range (°C)		18-34		18-34		18-34	
	Sensor		2PT1000		2PT1000		2PT1000	
	Recovery Time at 37°C for a 30 Second Door Opening* (min)		4		4		4	
Sterilization Cycle	Cycle Temperature		180°C on internal Surfaces and Shelves					
	Cycle Duration		Under 12 Hours		Under 12 Hours		Under 12 Hours	
Humidity	RH (Relative Humidity)		Setting 37°C ≥90%		Setting 37°C ≥90%		Setting 37°C ≥90%	
	Humidity Reservoir		Max. 1.75L/Min 0.5L		Max. 3.5L/Min 0.5L		Max. 5.5L/Min 0.5L	
Option	HEPA Filter		Y		Y		Y	
	Pressure Reducing Valve		Y		Y		Y	
	4-20mA		Y		Y		Y	
	The Cylinder Switch		Y		Y		Y	
	Shelf		Y		Y		Y	
	Water Tray		Y		Y		Y	
	3 Inner Door		N		Y		N	
	6 Inner Door		N		Y		N	
	8 Inner Door		N		N		Y	
	Roller Base		Y		Y		Y	
	Pure Copper Inner Liner		Y		Y		Y	
	Pure Copper Shelf		N		Y		N	
	Humidity Display		N		Y		N	
	Oxygen Module		Y		Y		N	
Others	Certification		CE	UL	CE	UL	CE	UL

*Product appearance and specifications are subject to change without notice