



**HCP-80(B)/168(B)/258(B)**

# CO<sub>2</sub> Incubator

## Product Features

- Uniform and Stable Temperature
- Precise CO<sub>2</sub> Concentration
- 180°C Dry-heat Sterilization
- Smart IoT (optional)

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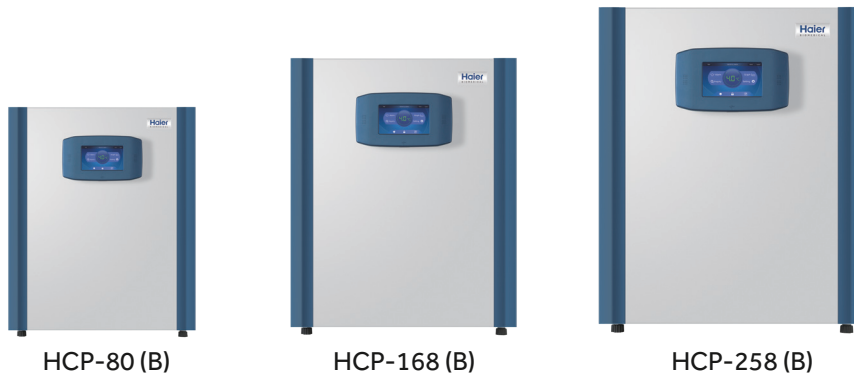


Haier Biomedical  
International

## CO<sub>2</sub> Incubator



Haier Biomedical IOT (optional) enabled CO<sub>2</sub> incubator with 180°C dry heat sterilisation provides a safe and secure reproducible growth environment for cell cultures.



HCP-80 (B)

HCP-168 (B)

HCP-258 (B)

### IR Sensitive Control of CO<sub>2</sub> Concentration

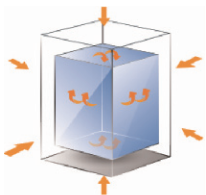
The new IR sensor with high temperature resistance of 190°C is based on the NDIR measurement principle and uses a silicon MEMS transmitter to replace the traditional light source. It can withstand more than 300 dry heat sterilization cycles with a service life of up to 15 years and control accuracy of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



### 7-inch Touchscreen

Displays CO<sub>2</sub> concentration and temperature data in real time. 15 years of data can be exported via USB

### 6-sided heating sketch

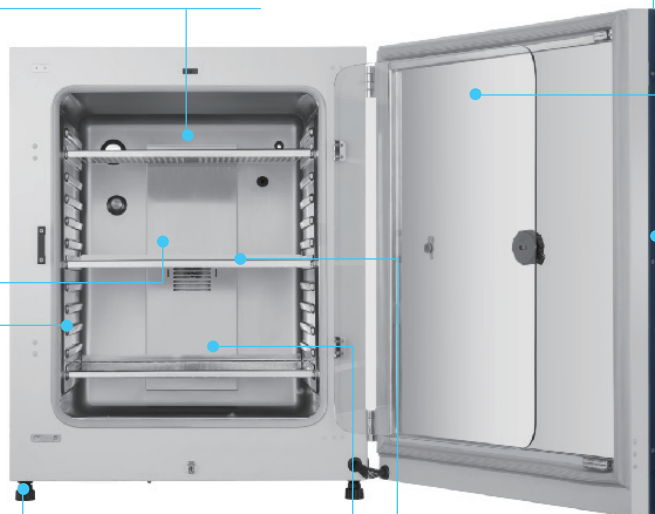


### 304 Stainless Interior



### Adjustable Feet

It can be double stacked



### Inner Door

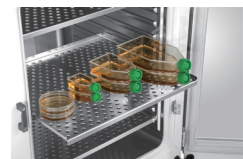
The door ensures the inside of the cabinet is sealed

### Outer Door

The heated outer door prevents the condensation of the inner door

### Internal Partition

Safety anti-slip design of pull out shelves

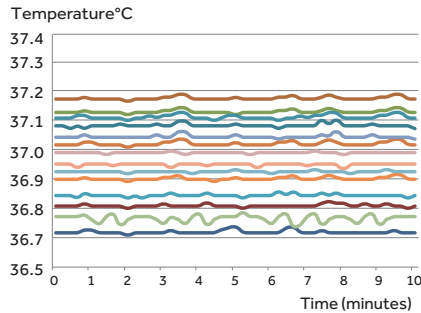


### 180°C Dry-heat Sterilization

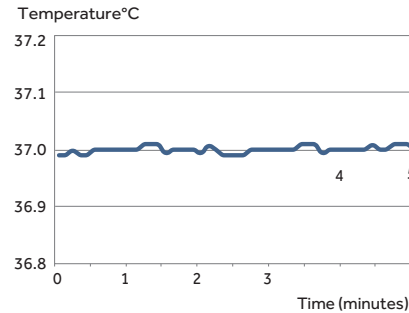
All internal components do not need to be disassembled and do not need separate autoclave sterilization to prevent secondary pollution. Cleaning consumables are not needed, one-button sterilization. German INFRARED CO<sub>2</sub> sensor, NDIR light source technology drift < 0.3% within two years. The unit can withstand sterilization at 180°C with no disassembly and no manual calibration

## Precise and Accurate Temperature Control

Controls the temperature precisely, within  $\pm 0.1^{\circ}\text{C}$ , 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.



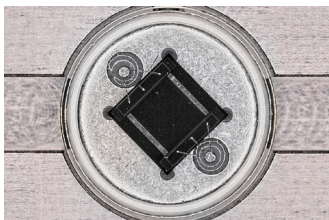
Uniformity of 27 measuring points  $< \pm 0.3^{\circ}\text{C}$



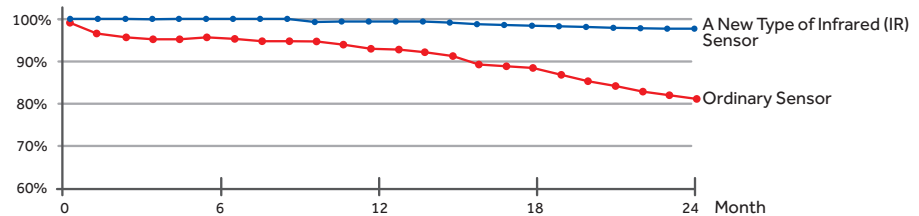
Central consistency point  $< \pm 0.1^{\circ}\text{C}$

## Precise CO2 Concentration Using New IR Sensor Control Technology

Haier Biomedical's new IR Sensor technology uses NDIR measurement principles and withstands high temperatures of  $190^{\circ}\text{C}$ . 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 CO2 concentration can be quickly restored within 4 minutes. Even if multiple users share a CO2 incubator and frequently open and close the door, the stability and uniformity of the incubator can be ensured.

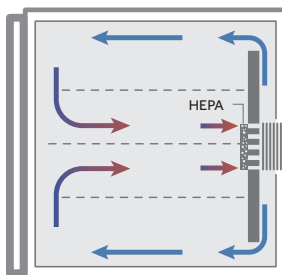
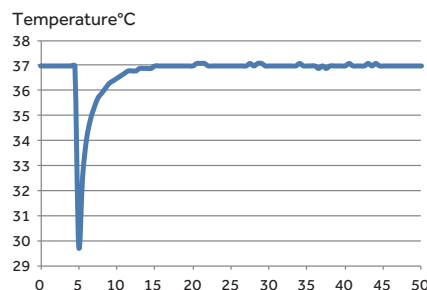
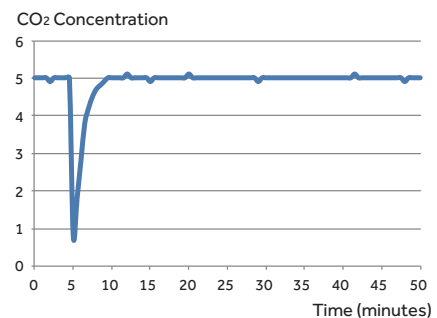


Illustration of purified airflow



Temperature recovery curve (door open for 30s)



CO2 concentration recovery curve (door open for 30s)

## 180°C Dry-Heat Sterilization Technology Minimises Contamination

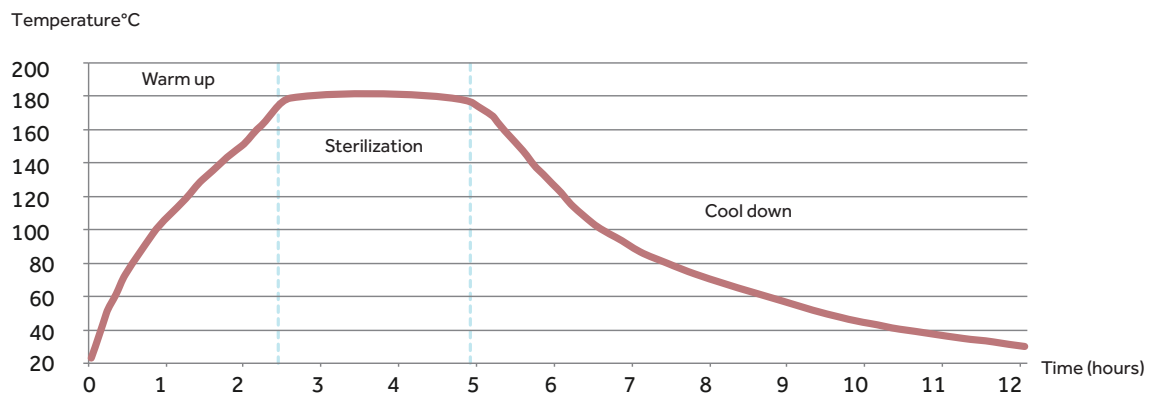


### 180°C Dry-Heat Sterilization Technology Minimises Contamination

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 disassemble internal components (including CO<sub>2</sub> sensors) and decontaminate separately, thus avoiding secondary pollution.

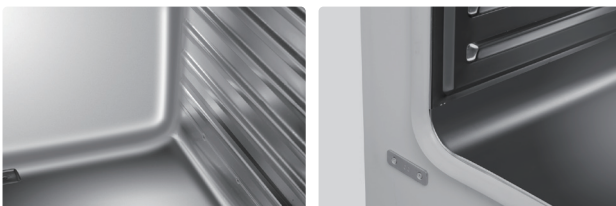


## High Efficiency Microbial Filter



The CO<sub>2</sub> 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<sub>2</sub> 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.

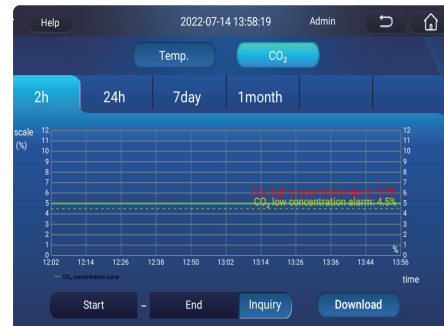
## Interactive Intelligent Display with Easy Touch Operation



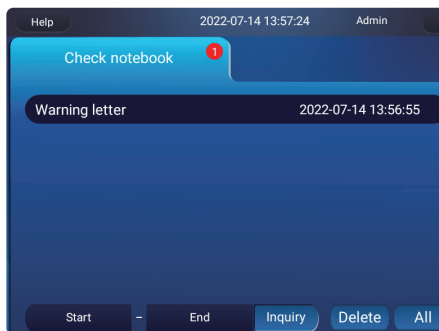
Touch-sensitive screen with rapid sensing even in rubber gloves. Green indicates normal operational parameters, while a red warning display indicates abnormal, making it easy to view data at a glance. A red warning display and audible buzzer will alarm when water level is low.



Home screen red warning.



Real-time display of operation data & real-time display of temperature, for CO<sub>2</sub> concentration and O<sub>2</sub> 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 upload set parameters, operation parameters, operation curves, records and event records through the IoT cloud platform. The operation of incubator can be monitored at anytime and anywhere through computer terminal. Alarm function, and service function are available through an one button touch.

## Anti-Condensation Heating System to Reduce Pollution Risk



The door on the CO<sub>2</sub> 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<sub>2</sub> concentration, door ajar and water shortage.

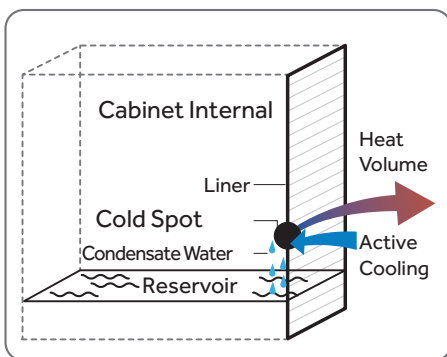
## Innovative and User-friendly Design with Attention to Detail



Safe anti-slip design with pull out shelves.



Drainage design



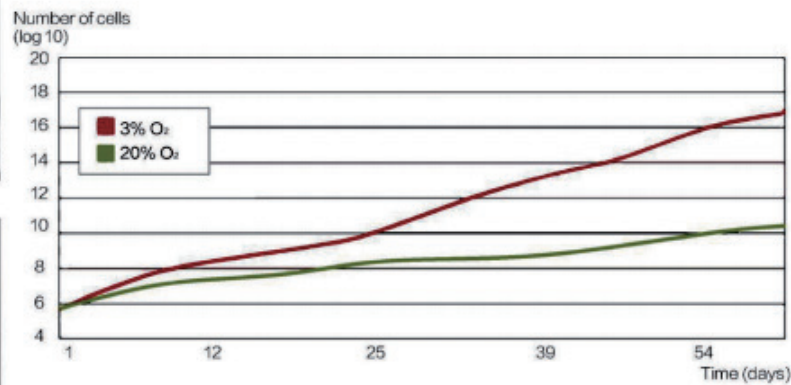
Active heat pipe condensation technology with any condensation directly returning to the reservoir.



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



## Accurate Oxygen Control (optional) for HCP-168(B)



Three or six internal doors are available to reduce gas consumption

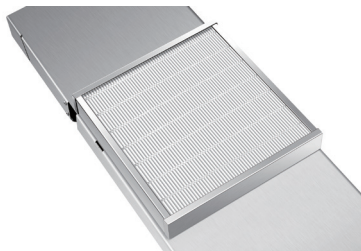
O<sub>2</sub> concentration can be controlled within the range of 1-21% or 5-90%

After opening the door for 30 seconds, the O<sub>2</sub> concentration can recover to 5% in only 8 minutes and 1% in 18 minutes

High precision zirconia O<sub>2</sub> 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 <sub>2</sub> 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<br>4 materials :<br>SUS304 single mirror surface<br>SUS304 double mirror surface<br>tempering glass<br>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/Cu.Ft)  | 80/2.8  |                | 170/6.0            |                | 258/9.1            |            |
|                       | 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 |                    |            |
| Shelves               | 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 |                    |            |
|                       | Dimensions (W*D)  | mm  | 380*300        | 473*434            | 550*484        |                    |            |
| Electrical            | 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                          |                |                    |                |                    |            |
|                       | Rated Voltage Power Supply (V/Hz)                                       | 220-240-50/60                                   | 115-60         | 220-240-50/60      | 115/60         | 220-240-50/60      | 115/60     |
| Control               | Nominal consumption (kw) (Steri-Run)                                    | 0.08 (0.85)                                     | 0.08 (0.75)    | 0.095 (1.3)        | 0.095 (1.1)    | 0.12 (1.35)        | 0.12 (1.2) |
|                       | Controller  | Microprocessor                                  |                | Microprocessor     |                | Microprocessor     |            |
| CO <sub>2</sub>       | Display   | 7 "LCD Screen                                   |                | 7 "LCD Screen      |                | 7 "LCD Screen      |            |
|                       | Control Accuracy  | 0.10%   |                | 0.10%              |                | 0.10%              |            |
|                       | 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  | min.99.5% or medical quaiity                    |                |                    |                |                    |            |
|                       | Sensor  | IR  |                | IR                 |                | IR                 |            |
|                       | Recovery Time ** (after 30s door opening,98% from initial value) (min)  | 4   |                | 4                  |                | 4                  |            |
|                       | CO <sub>2</sub> Inlet Filter (µm)                                       | <0.2  |                | <0.2               |                | <0.2               |            |
| Alarms                | High/Low Temperature  | Y   |                | Y                  |                | Y                  |            |
|                       | Remote Alarm  | Y   |                | Y                  |                | Y                  |            |
|                       | Excessive CO <sub>2</sub> 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                |            |
|                       | Temperature 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            |            |
| Sterilization Cycle   | Recovery time *** (after 30s door opening,98% from initial value) (min) | 4   |                | 4                  |                | 4                  |            |
|                       | 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 |            |
|                       | HEPA Filter   | Y   |                | Y                  |                | Y                  |            |
| Option                | 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                  |            |
| Others                | Oxygen Module   | Y   |                | Y                  |                | N                  |            |
|                       | Certification   | CE  | UL             | CE                 | UL             | CE                 | UL         |

\*Product appearance and specifications are subject to change without notice

\*\* For CO<sub>2</sub> not exceeding 5.2%

\*\*\* For temperature not exceeding 37°C