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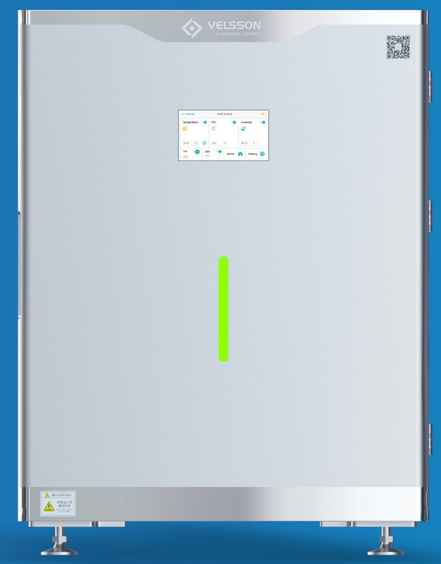


High efficiency incubator,cell new home

INNOCUBATOR™

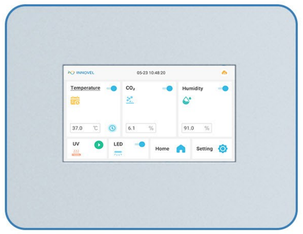
CO_2 Incubator

INNOCUBATOR™

CO_2 Incubator

CO_2 incubators have been widely used in cell culture and research in life science. The typical application areas include tissue engineering, assisted reproduction, neuroscience, cancer research, microbial research and other mammalian cell research. The main purpose is in vitro culture to create a growth environment as natural as possible for cells and tissues.

Number：IN-BP-5001008

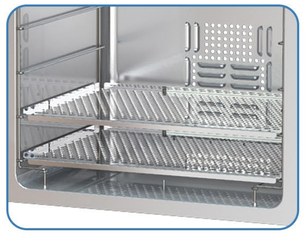


1 7-Inch touch screen

- Local software control of INNOSMART® SMS
- User-friendly and intuitive graphical interface

2 Outer door

- Hidden hinges and door handles, simple and aesthetic
- Could be opened on both the left and right, according to user convenience
- Internal heating prevents condensation
- Sealing strips ensure stable internal environment



3 Partitions

- All stainless steel material (all copper optional)
- Integrated anti-slipping push-pull design
- Could be placed as needed without any tools Easy to push in and pull out, easy to clean
- Perforated partitions ensure uniformity
- Anti-tip safety design

4 Glass inner door

- Easy to observe the culture conditions in the chamber

5 Door lock design

- All stainless steel material
- Used to open and close glass doors

6 Door control switch

- Monitors door opening and closing
- Automatically shuts off gas supply when outer door is open
- Alarms when the door is open for too long

7 Air duct system

- Convection air outlet design
- Quick recovery of various operating parameters
- Uniformity of chamber operating parameters
- Built-in temperature and humidity sensors

8 EVA insulation layer

- Fully wrapped EVA insulation layer, eco-friendly
- Excellent thermal insulation performance

9 Heating film

- Full circumferential heating system for temperature uniformity
- Fast heating
- Temperature recovers quickly without overheating

10 Integrated liner

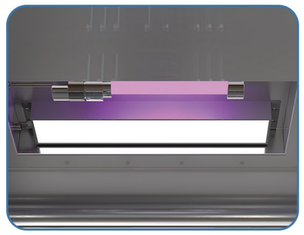
- 8K stainless steel mirror inner cavity
- Integrated large arc corner, easy to clean
- GMP cleaning verification, more compliant

11 Ultrasonic vibration humidity control system

- No evaporation tray to avoid bacterial growth
- Active high-precision temperature control
- Humidity uniformity
- Water level monitoring and automatic water replenishment

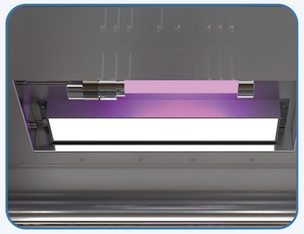
12 Interface system

- Power supply and ethernet interface
- Microbial filters in all air inlets
- Liquid inlet



13 Ultraviolet sterilization lamp

- Sterilization scheduled in non-working hours

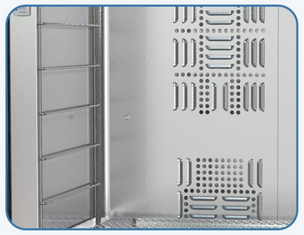


14 LED lighting

- Keeps the incubator bright

15 HEPA

- High-efficient air filtration system
- Filtered circulating air flow ensures a clean environment for cell culture



16 Six-sided temperature control

- It could be continuously adjusted in the range of 2-8℃, 16℃, 31-40℃ (ambient temp.<28℃) to ensure the temperature uniformity in the cabin
- 6-point temperature sensor measures and monitors temperature in real time
- Unique connection design ensures accurate measurement of cavity temperature

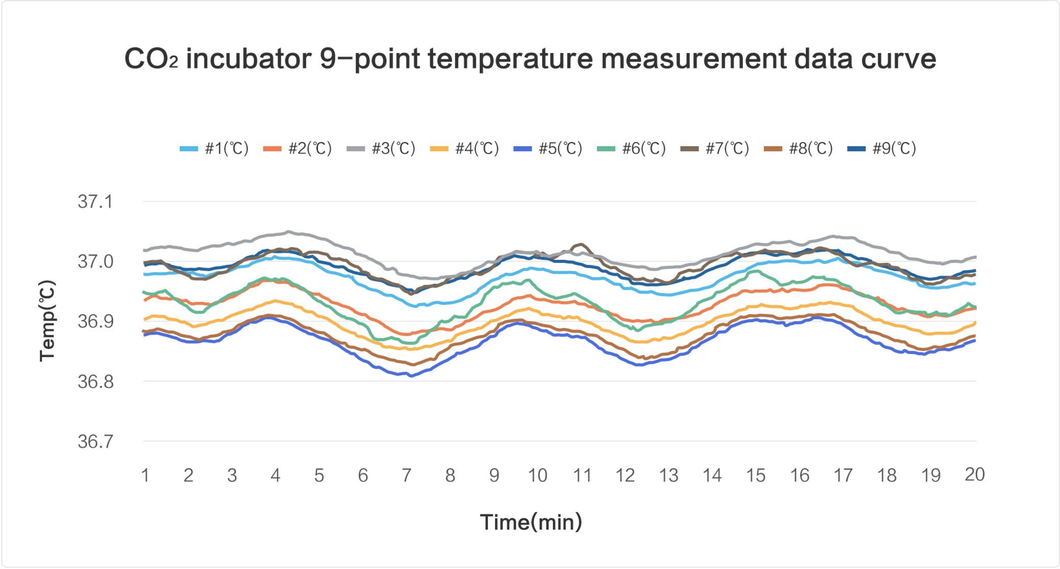
17 CO_2 sensor

- New infrared (IR) sensors with excellent stability
- Single-beam dual-wavelength IR sensor to achieve zero drift
- CO_2 Concentration measuring range of 0-20%
- Wide operating temperature range -40℃~60℃
- IP63 rated housing
- Fully temperature and pressure compensated
- Automatic calibration of the sensors
- Resistant to H_2O_2 and alcohol-based cleaners
- Heated sensor head prevents condensation
- In-situ sterilization without disassembly

18 Drainage design

- Using the special cleaning tools equipped, external high-pressure water could be used to clean the bottom of the inner cavity and partitions simply, quickly and efficiently

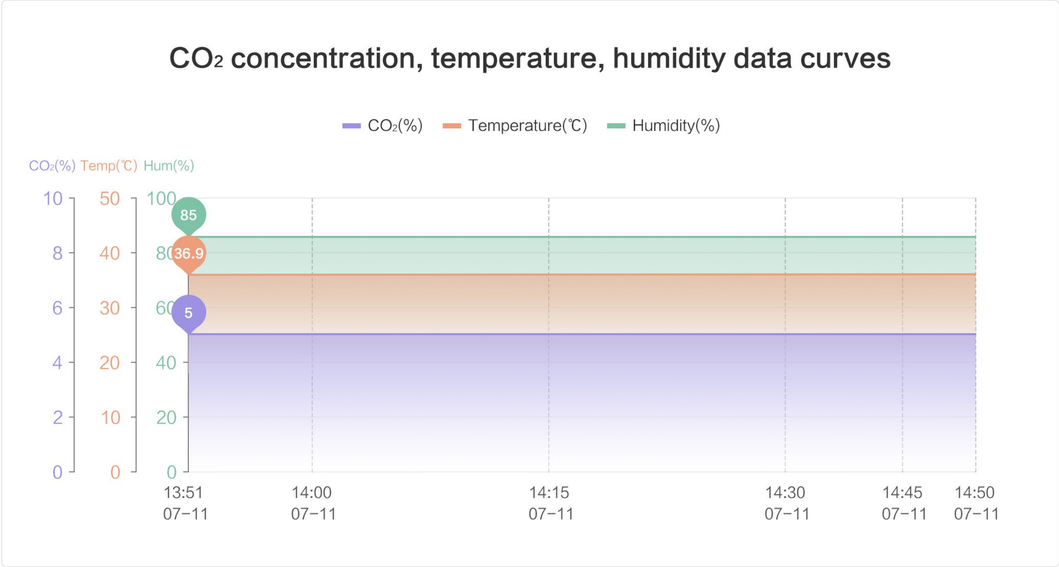
Accurate, stable and uniform parameter control



9-Point temperature measurement data curve, temperatures fluctuates between ±0.2℃

Lines of different colors represent temperatures measured at different points. Temperature uniformity is <±0.2℃, which means that samples in the INNOCUBATOR™ cavity can be heated evenly.

9-Point temperature measurement



CO_2 concentration, temperature and humidity data curves in the CO_2 incubator cavity, fluctuations within 1 hour

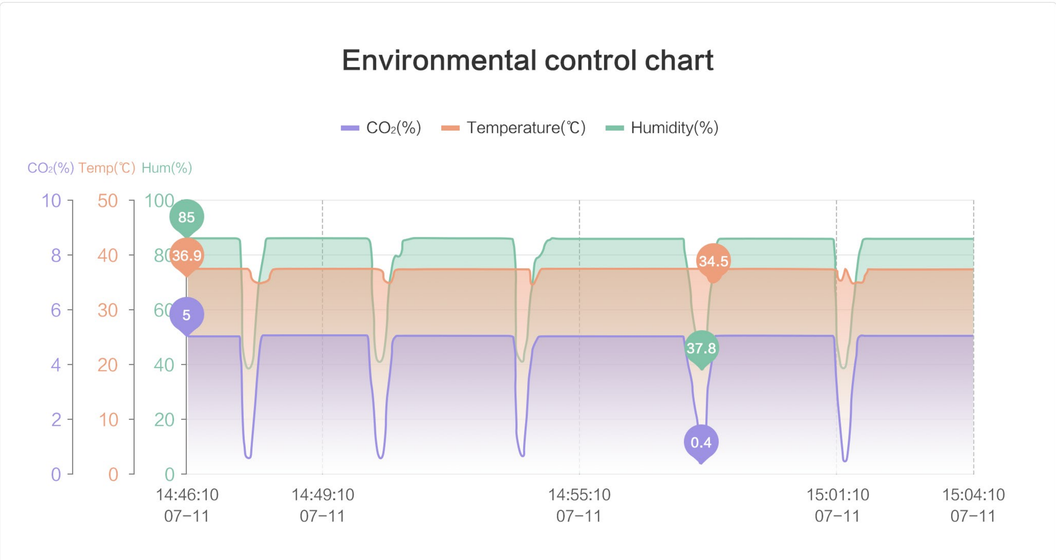
The CO_2 concentration fluctuation range is <±0.1%, the temperature fluctuation range is <±0.1℃, and the humidity fluctuation range is <±1%

- Six-sided full-circumferential heating film ensures stable and even heating
- Fully wrapped EVA insulation layer with excellent thermal insulation
- Internal forced convection accelerates internal temperature uniformity
- Atomizer humidification, stable and controllable to determine the accuracy of temperature

Quick recovery of CO_2 concentration, temperature and humidity, precise control without overshoot

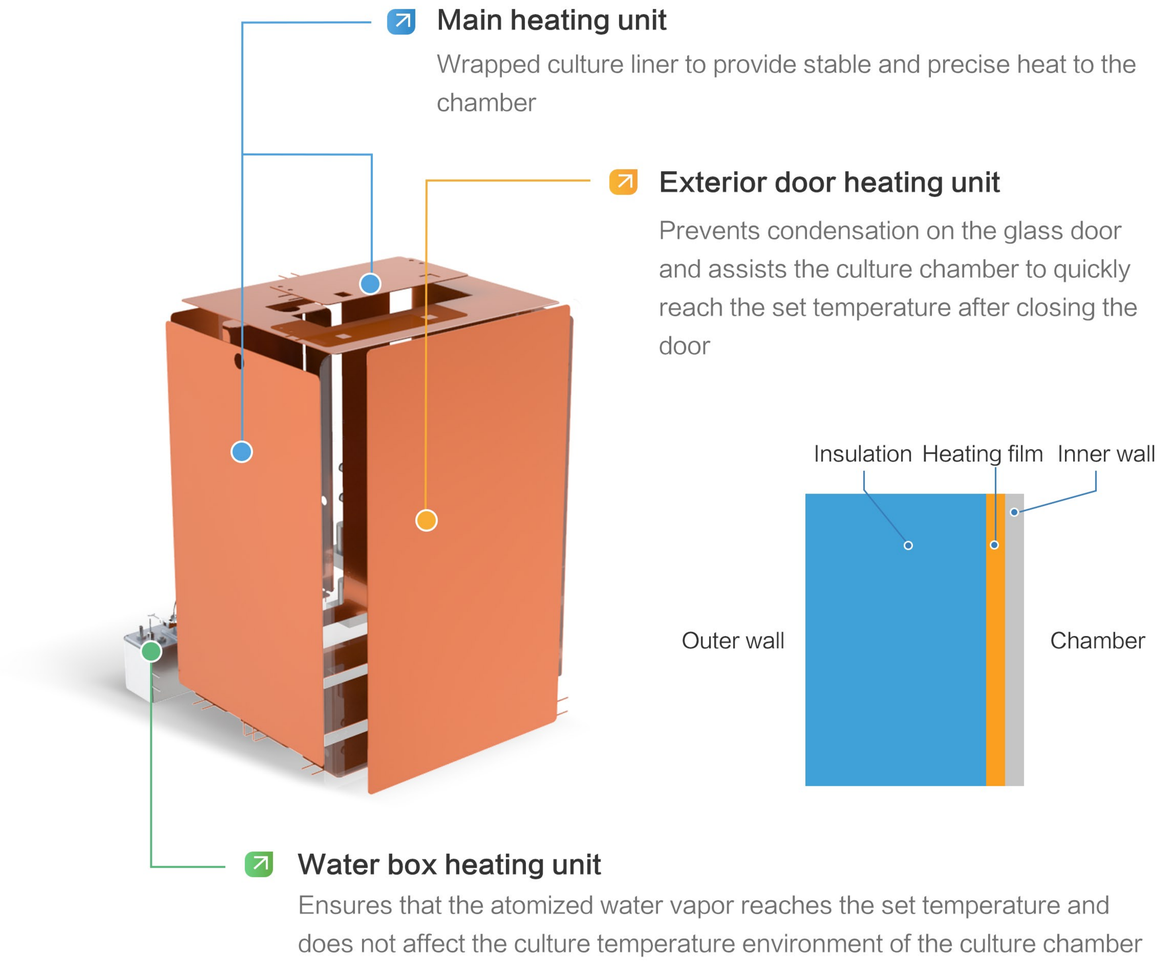
Data curves of CO_2 concentration, temperature, and humidity in the CO_2 incubator cavity, and fluctuations within 30 seconds of opening the door for five times.

With the software system in cooperation, the CO_2 concentration, temperature and humidity recover quickly without overshooting after the outer door is opened, which means that the CO_2 concentration is constant even if the outer door is opened frequently. Likewise, the recovery of temperature and humidity is more than four times faster than that of traditional incubator products.



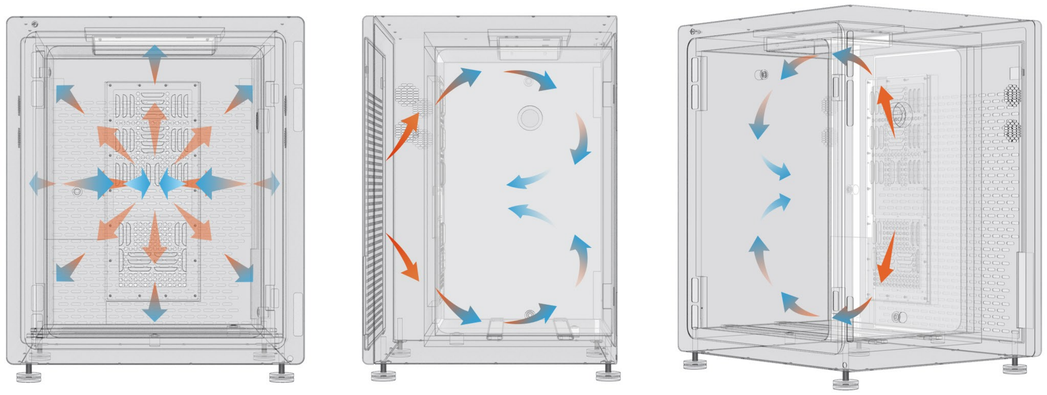
Heating design

The direct heating method of the heating film has a fast heating speed, ensuring that the cavity reaches the set temperature quickly. It is fully wrapped with an insulation layer with low thermal conductivity and has excellent insulation effect. The temperature is collected through the PT100 sensor and intelligently controlled by microprocessor to ensure the stability of the temperature inside the cavity.



Flow simulation

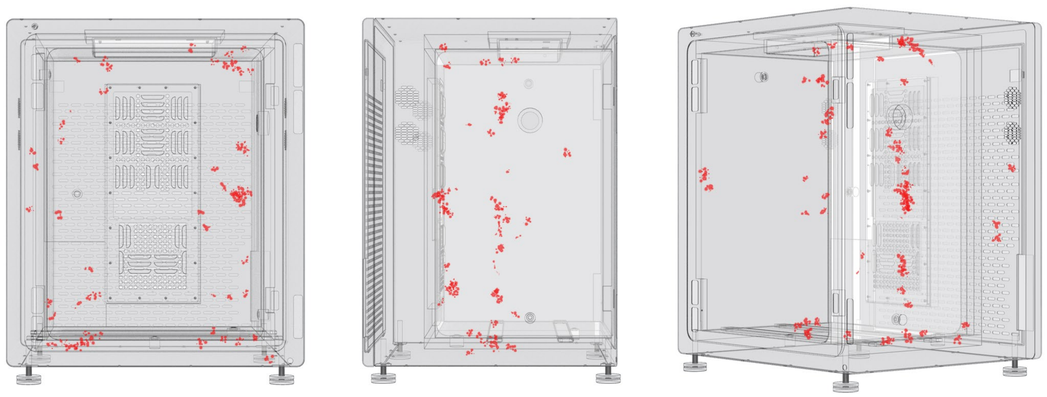
Flow route ➤➤



Low-speed range ➤➤

Speed < 0.1m/s:

Volume 6.39e-05 [m^3]



Volume of computational domain: about 0.24m^3

Bacteriostatic sterilization

Built-in UV sterilization lamp for convenient and fast sterilization

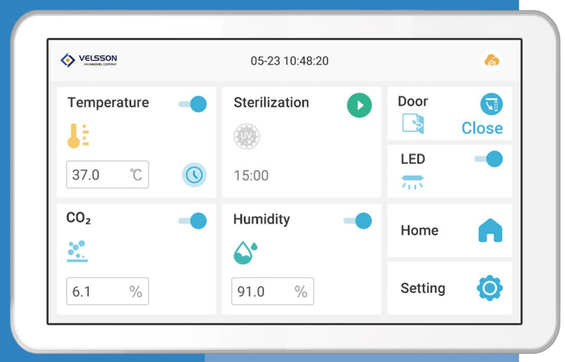
External water tank for humidification to prevent bacteria from growing in the built-in water tank

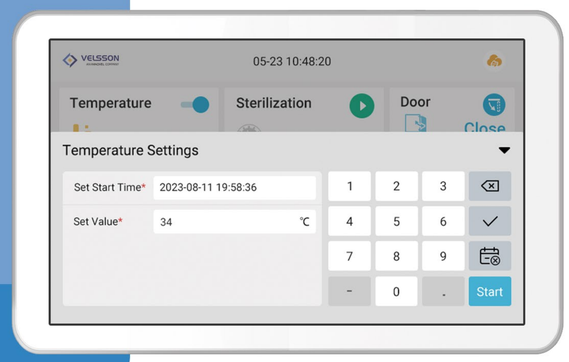
The inlet air is filtered through a 0.2μm filter to eliminate impurities and pollutants in the gas

Advanced System

INNOCUBATOR™ supports both local and remote software operating systems. The local is based on a touch screen user interface and the remote on a browser user interface.

Note: The data traceability period depends on the system disk capacity





01

Local touch screen user interface

Multi-touch capacitive display, easy to operate with fingers (can be sensitively recognized whether wearing gloves or not); friendly graphical interface design, simple and user-friendly

Comprehensive alarm functions

Over-temperature alarm, over-speed alarm, sensor failure alarm, timing alarm, door opening alarm, over-concentration, over-humidity alarm, and leakage protection.

Data storage function

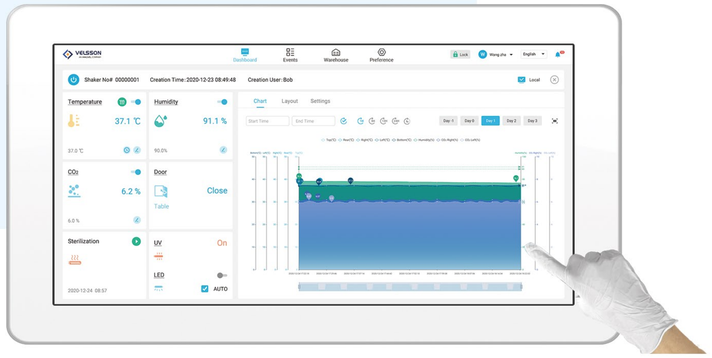
Alarm information query, scheduled data recording according to actual needs

02

Remote browser user interface

Compatible with multiple mainstream browsers on PC, providing quick and intuitive access to all incubator data in the unified network.

Various types of user permissions can be authorized to realize remote control, alarm, and online viewing of practice logs, historical equipment performance, and data charts. It supports long-term data storage and makes data traceability easier. The software system can configure array incubators and monitor hundreds of incubators at the same time, realizing one-step-away convenience between the user and the incubator.



03

Security Functions

- High, low and extreme-temperature alarms
- Door temperature sensor failure alarm
- High and low CO_2 concentration alarms
- Alarm if the door is open for too long
- High, low and too low humidity alarms
- Box temperature sensor failure alarm
- Water box temperature sensor failure alarm
- Power failure alarm
- Disinfection and sterilization status prompt
- Humidity sensor failure alarm

Alarm method

- Alarm information recorded on local touch screen, buzzer prompts alarm
- Alarm information recorded on remote user interface, standard interface tracking and email prompt alarm, with SMS, voice alarm optional

Specifications

Temperature Control	
Temperature control mode	Direct heating on 6 sides
Number of temperature detection points	6-Point temperature measurement method
Temperature range	31~40℃（±0.2℃）
Temperature Uniformity	±0.2℃
Temperature control accuracy	±0.2℃
Temperature recovery time (open door 1min)	≤10min
Setting precision	0.1℃
Alarm	Upper and lower limits could be programmed

CO_2 Control	
CO_2 control system	PLC control
CO_2 control range	0~20%
CO_2 control accuracy	±0.1%
CO_2 sensor	Infrared (IR) sensor
CO_2 recovery time (open door for 1 minute)	≤10min
Setting precision	0.10%
Reading precision	0.10%
Alarm	Upper and lower limits could be programmed
Input pressure	<0.1MPa

Humidity Control	
Humidification method	Atomizer humidification, eliminating the water tray, greatly reducing the risk of bacterial contamination
Humidity control	80~95% r.h
Humidity control accuracy	±1%

Sterilization	
Sterilization method	UV sterilization
Sterilization time	Could be sterilized regularly

Pipeline	
Water outlet	17# silicone tube
Drainage	17# silicone tube
CO_2 air inlet	Inner diameter 8mm, outer diameter 12mm

Technical Specifications	
Volume	160L
Overall dimensions	700*720*870mm（L*D*H）(27*28*34 inch)
Inner cavity size	500*500*640mm（L*D*H）(20*20*25 inch)
Product weight	155Kg (excluding partitions)
Number of standard partitions	4
Maximum number of partitions	8
Partition size	500*470mm (20*19 inch)
Load of each partition	15Kg
Power supply	AC220V~50Hz
Power	2KW
Network communication port	Standard configuration

Item list	
CO_2 Incubator	1
Connecting pipe	1
Partition	8
HEPA filter	1

Equipment name	Specification	Number
CO_2 Incubator INNOCUBATOR™ 160	INNOCUBATOR 160.01 (standard)	IN-BP-5001008