Air jacket CO_2 incubator

BIO-RHP series/BPN-CRH series

Water jacket CO_2 incubator

BIO-RWP series

Precision temperature control (37%) + Stable CO_2 concentration control (5%)

+ +

Saturated humidity environment (≥95%) + Effective microbial contamination prevention

Technical Specifications

Basic Research

Cell Biology

Biotechnology

Clinical University Hospital

Organizational Engineering

IVF

Being CO_2 incubator family

BPN-

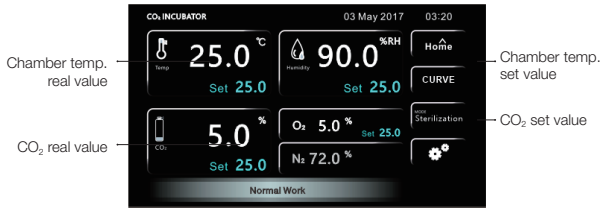
Model	Heating way	CO_2 control way	Controller	Sterilization way
CRH	Air jacket heat	Infrared sensor	LCD with button	Ultraviolet ray +HEPA
RHP	Air jacket heat	Infrared sensor	Touch screen	90℃ high temp . and high humidity + HEPA
RWP	Water jacket heat	Infrared sensor	Touch screen	Ultraviolet ray + HEPA

Chamber volume 40L\50L\60L\80L\150L\170L\190L\240L

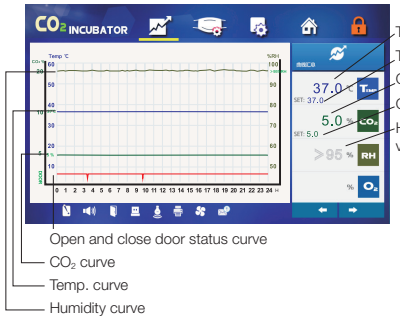
Friendly and simply operation interface (touch screen)

Main interface

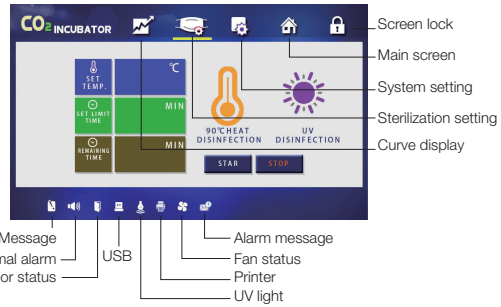
On time display



Curve display interface

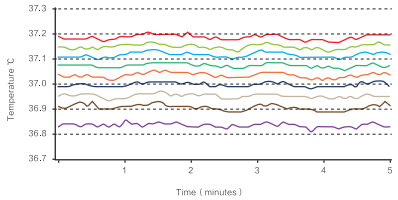


Sterilization set



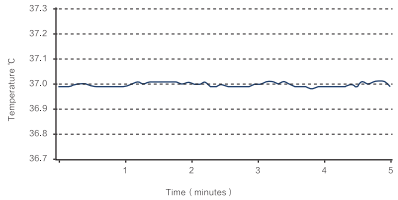
It can display on time performance curve. You can check the temp., humidity and CO_2 concentration three group curves changes at the same time. And abnormal alarm and door open or close message.

Accuracy temperature control system



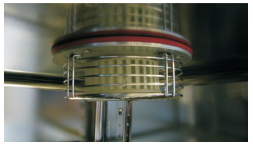
Temp. in the chamber temp. uniformity≤±0.2℃ , all the samples are universal heating.

Note: Curve and uniformity are tested when the temp. in chamber are stable.



Temp. in the incubator temp. wave is ±0.1℃

BIO-RHP/RWP series CO_2 incubator

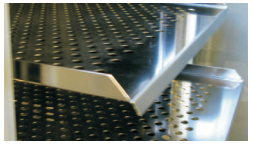


Intelligent air cycle system

- The power of cycle fan can be adjustable. When the temperature in the chamber is stable, the fan speed will be lowed down, it is adjusted to the speed that suitable for cell growth and avoid the samples vapor due to too much air.
- Temperature, CO_2 concentration and temp. uniformity are improved by cycle fan.

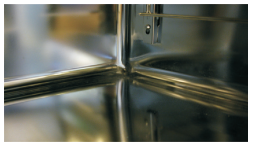
Door control switch

- When the incubator is working and user open the inner glass door, CO_2 incubator will pause heating ,CO_2 gas inlet and cycle fan working automatically.



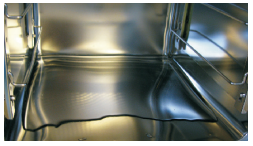
Shelves

- Easy-to-install and dismantle stainless steel shelf system that also prevents slippage.
- According to different chamber volume, the shelves heights can be easily adjusted or increased.
- Prevent slippage design When the experimenters place a large number of cell culture bottles or petri dishes and draw the shelves half out of the chamber, the shelves still can keep level to prevent the culture fluid overflow.



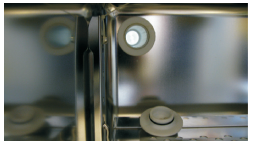
Integral internal chamber

- Stainless steel chamber 100% sunken corner, no dead angle and facilitate the experimenter's clean.
- Chamber and shelves are stainless steel by special electroplating treatment, it avoid corrosion and easy to clean and sterilization. No dead corner prevents microorganisms contamination.



No water tray humidity providing design

- The machine outer high inside low structure can allow water go into chamber directly then no need for experimenter place water tray. It can ensure max square water evaporator and ensure chamber inside related humidity is more than 95%.The incubator inside humidity saturated fast, it avoid the sample dehydration.



Test hole(Option)

- It facilitate experiment operation and test temperature, achieving integrity of the experiment.
- When the incubators inside needs auxiliary equipments, the electric wires or control wires can go through the test hole to inside the chamber, then it doesn't need to guide the wires from the door and affect the whole chamber seal.

Adjustable height of support legs

Multi-intelligent detection system

- Replace traditional button operation to touch screen interface.
- It can display on time performance curve. You can check the temp., humidity (option) and CO_2 concentration three group curves changes at the same time. And abnormal alarm and door open or close message.
- With various alarms for example: Door unsealed, over or low temp. alarms, over or low CO_2 concentration alarms, high temperature sterilization alarm, sensor broken etc.
- RS-485 can be installed for long distance remote control. (Options)

Door grooved handle

- Experimenter can easily open or close door because the grooved handle, it is easy to clean.

Magnetic door gasket

- Outer door uses magnetic door seal, inner glass door and chamber use silicone rubber seal, it ensures inside fully seal.

Heated outer door

- The outer door is heated to prevent condensed water from the glass door. It facilitates observe the experiment process, also it avoid the biological pollution possibility due to the condensed water from the inner glass door.

Inner glass door

- This door is convenient for experiment observe.The back of glass door has door switch.When the glass door open, the machine can cut down heating and air inlet valve and close the cycle fan.It prevents temp. CO_2 concentration out of control.

HEPA filter (Only applied for RHP/RWP)

A. HEPA efficient filters

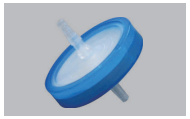
- The CO_2 gas quality is a important factor to judge cell culture in the CO_2 incubator. HEPA high efficient filters can filter bacteria and dust in the air. It eliminates cross contamination from outer air to incubator chamber air and keep the chamber inside aseptic. Close the door for 5 min, inside air can fast resume to hundred grade clean. HEPA air filter is easy to disassemble without any special instruments.

B. Microbe HEPA filter

- CO_2 access port equips micro biological HEPA filter, it can filters diameter ≥0.3um Particles like CO_2 gas bacteria and dust, the efficient reaches to 99.99%.

C. CO_2 inlet control system

- We supply pressure release valve together with the equipment. It can control the pressure stable.
- The system has pressure protection function, it prevents over pressure or low pressure to the pipes that affect stable gas supply.



BIO-RHP Air jacket CO_2 incubator touch screen type

Intelligent touch screen controller

- Replace traditional button operation to touch screen interface.
- It can display on time performance curve. You can check the temp., humidity (option) and CO_2 concentration three group curves changes at the same time. And abnormal alarm and door open or close message.
- When parameters are set, the controller will lock the screen automatically, it avoid unauthorized person wrong operation on the machine.
- 72 hours machine performance inquiry, it is convenient for user to check abnormal situation and track historical running information.
- RS-485 communication port as options can be remote control on computer for monitoring the running and start or close the machine.

CO_2 concentration sensor

- You may need to open door frequently during experiment, infrared sensor is the best choice under this circumstances. Our infrared sensor is very sensitive to CO_2 concentration varies and it will be not affected by inside of incubator chamber conditions, measured accurately. It doesn't like traditional thermal probe that will be sensitive to chamber temp., and humidity that lead to incorrect CO_2 concentration data.
- If open the door for 30s and close the door, within 3 min the CO_2 concentration can resume to the set value 5%.Even if there are many people use the same machine and frequently open and close door, the inside chamber can still maintain CO_2 concentration stable and uniform.

Temperature control and monitoring system

A.Incubator temperature control system

- PT100 temp. sensor keeps inside chamber temperature accurate. It can adjust the heating power according to the temp. differences between actual temp. in the chamber and set temp. to make sure temp. in the chamber is accurate. It can resume experiment temp. in 3 min after user open and close door to take samples.

B.Door heating system

- Outer door ring has heating function. The temperature of door ring will be a little bit higher than temp. in the chamber to prevent condensed water coming from the inner glass door. It facilitates observe the experiment process, also it avoid the biological pollution possibility due to the condensed water from the inner glass door.

C.Environment temp. detect system

- Independent environment temp. detector, it can automatically adjust the CO_2 incubator heating system according to experiment environment temp. varies, in this case, over temp. in the chamber will not happen.

D.Over temp. protection system

- It is an independent backup temp. control system besides the CO_2 incubator temp. control system. When the incubator temp. control system failed and caused temp. lose control, the chamber temp. reaches to the over temp. limiter set value, over temp. protection system will cut down the heating and alarm audible with light.

E.Power off alarm system

- Detect the power supply real time. When power off, the incubator will alarm audible with light to avoid any loss due to power shortages.

Sterilization system

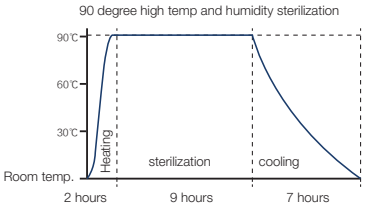
Ultraviolet sterilization(Option)

- The ultraviolet lamp is placed at the back top of the chamber. It can sterilize the chamber regularly. It kills chamber recycle air bacteria and float bacteria from water tray or slop water in the bottom, effectively prevent pollution during cell culture period.

Sterilization system

A.90 degree high temp. high humidity sterilization system (RHP)

- It can thoroughly sterilize the chamber (Including temp. sensor, CO_2 concentration sensor, fan, shelves and brackets etc) with high temp and high humidity. It eliminates bacteria, mold, mycoplasma etc microbiology those will pollute the microorganisms cell culture and provides a safe experiment environment.
- Simple operation: The user just press the sterilization start button on the control panel, the sterilization system starts to thoroughly sterilize the chamber (Including temp. sensor, CO_2 concentration sensor, fan, shelves and brackets etc)
- The whole sterilization cycle is shorten to 18 hours.



Safe Functions

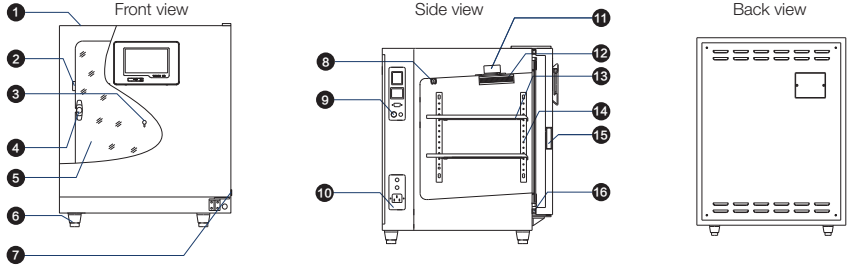
- High and low temp. and over temp. alarm
- Door open too long alarm
- Door temp. sensor failure alarm
- Chamber sensor failure alarm
- CO_2 condensation too high or too low alarm
- Disinfection and sterilization status reminder
- Independent temp. limiter alarm
- Power off alarm
- Over temp sensor failure alarm

Technical parameter

Model	BIO-150RHP	BIO-190RHP	BIO-240RHP
Electrical requirement	AC220V/50Hz		
Input power	750W	750W	950W
Heating power	Air jacket micro computer PID control		
Temp. control range	RT+3 - 50℃		
Work environment temp	+5 - 30℃		
Temp. accuracy	±0.1℃		
CO_2 control range	0 - 20%		
CO_2 control accuracy	±0.1% (IR sensor)		
CO_2 restore time	(Door open 30s, recovery to 5%) ≤ 3min		
Temp. restore time	(Door open 30s, recovery to 37℃) ≤ 8min		
Related humidity	Nature vaporate > 95% (Can equip with related humidity digital display)		
Volume	155L	190L	240L
Chamber size W×D×H(mm)	480×530×610	520×530×690	600×630×670
Overall size W×D×H(mm)	670×767×880	708×710×1030	788×837×940
Standard shelves qty	3 pcs		
Sterilization	90 degree centigrade and UV sterilization + HEPA high efficient filter		

Nature evaporate>95%

CO_2 incubator structure



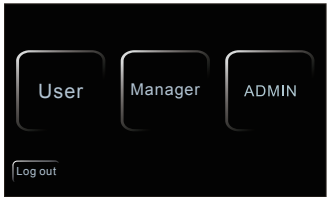
1. Outer 2.Door switch 3.Test hole 4.Glass door knob 5.Glass door 6.Adjustable feet 7.Door open collision block 8.Ultraviolet lamp 9. CO_2 switch box 10.Main power input 11.Fan 12.HEPA 13.Shelves 14.Adjustable shelve holder 15.Door handle 16.Magnetic door seal

BIO-RWP series water jacket CO_2 incubator touch screen

Water jacket CO_2 incubator is designed for long time stable culture. The control temp. is stable and accurate, suitable for the microorganisms culture with long cycle and not need to open door often.

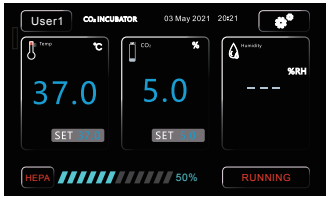
Intelligent touch screen controller

- Replace traditional button operation to touch screen interface.
- It can display on time performance curve. You can check the temp., humidity (option) and CO_2 concentration three group curves changes at the same time. And abnormal alarm and door open or close message.
- When parameters are set, the controller will lock the screen automatically, it avoid unauthorized person wrong operation on the machine.
- 72 hours machine performance inquiry, it is convenient for user to check abnormal situation and track historical running information.
- RS-485 communication port as options can be remote control on computer for monitoring the running and start or close the machine.



CO_2 concentration sensor

- You may need to open door frequently during experiment, infrared sensor is the best choice under this circumstances. Our infrared sensor is very sensitive to CO_2 concentration varies and it will be not affected by inside of incubator chamber conditions, measured accurately. It doesn't like traditional thermal probe that will be sensitive to chamber temp., and humidity that lead to incorrect CO_2 concentration data.
- If open the door for 30s and close the door, within 3 min the CO_2 concentration can resume to the set value 5%.Even if there are many people use the same machine and frequently open and close door, the inside chamber can still maintain CO_2 concentration stable and uniform.



Temperature control and monitoring system

A.Incubator temperature control system

- PT100 temp. sensor keeps inside chamber temperature accurate. It can adjust the heating power according to the temp. differences between actual temp. in the chamber and set temp. to make sure temp. in the chamber is accurate. It can resume experiment temp. in 3 min after user open and close door to take samples.

B.Water jacket heating system

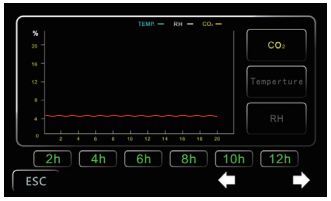
- Water jacket heating method to ensure working chamber temperature is uniform, when it is power off, the chamber can maintain the temp. for a long time.

C.Door heating system

- Outer door ring has heating function. The temperature of door ring will be a little bit higher than temp. in the chamber to prevent condensed water coming from the inner glass door. It facilitates observe the experiment process, also it avoid the biological pollution possibility due to the condensed water from the inner glass door.

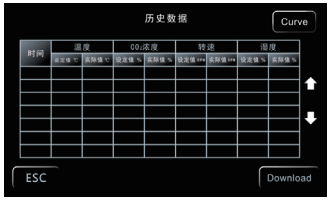
D.Over temp. protection system

- It is an independent backup temp. control system besides the CO_2 incubator temp. control system. When the incubator temp. control system failed and caused temp. lose control, the chamber temp. reaches to the over temp. limiter set value, over temp. protection system will cut down the heating and alarm audible with light.



Documentation and failure diagnostic display (Option)

- All data can be stored through RS485 port, if any failures, user can read the diagnostic message and data from computer at any time.



Pollution proof control

A.Ultraviolet sterilization

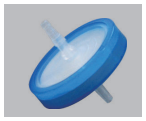
- The ultraviolet lamp is placed at the back top of the chamber. It can sterilize the chamber regularly. It kills chamber recycle air bacteria and float bacteria from water tray or slop water in the bottom, effectively prevent pollution during cell culture period.

B.HEPA efficient filters

- The CO_2 gas quality is a important factor to judge cell culture in the CO_2 incubator. HEPA high efficient filters can filter bacteria and dust in the air. It eliminates cross contamination from outer air to incubator chamber air and keep the chamber inside aseptic. Close the door for 5 min, inside air can fast resume to hundred grade clean. HEPA air filter is easy to disassemble without any special instruments.

C.Micro biological HEPA filter

- CO_2 access port equips micro biological HEPA filter, it can filters diameter ≥0.3um Particles like CO_2 gas bacteria and dust, the efficient reaches to 99.99%.


Microbe filter


HEPA efficient filter

Cycle fan speed adjustable automatically

- Cycle fan speed can be adjusted automatically. When chamber temp. is stable, the fan speed will be lower down, the speed will be adjusted to a suitable speed that the cell can growth. It avoids the fast fan speed that evaporating the samples.

CO_2 inlet control system

- We supply pressure release valve together with the equipment. It can control the pressure stable.
- The system has pressure protection function, it prevents over pressure or low pressure to the pipes.

Safe Functions

- High and low temp. and over temp. alarm
- Door temp. sensor failure alarm
- CO_2 condensation too high or too low alarm
- Door open too long alarm
- Chamber sensor failure alarm
- Over temp sensor failure alarm
- Independent temp. limiter alarm
- Disinfection and sterilization status reminder

Technical parameter

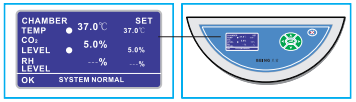
Model	BIO-170RWP	BIO-240RWP
Electrical requirement	AC220V/50Hz	
Input power	700W	1000W
Heating power	Water jacke	
Temp. control range	RT+5 - 50℃	
Work environment temp	+5 - 30℃	
Temp. accuracy	±0.1℃	
CO_2 control range	0 - 20%	
CO_2 control accuracy	±0.1% (IR sensor)	
CO_2 restore time	(Door open 30s, recovery to 5%) ≤3min	
Temp. restore time	(Door open 30s, recovery to 37℃) ≤ 8min	
Related humidity	Nature vaporate > 95% (Can equip with related humidity digital display)	
Volume	170L	240L
Chamber size W×D×H(mm)	530×460×720	600×520×780
Overall size W×D×H(mm)	684×700×960	754×760×1020
Standard shelves qty	3 pcs	
Sterilization	UV sterilization+HEPA sterilization	

Note: All parameters are measured at 25℃

BPN-CRH series air jacket CO_2 incubator LCD type

LCD screen controller

- LCD screen, micro computer PID control that can display temp. CO_2 concentration, related humidity, operation failure reminder and menue operation are easily to observe and use.



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B.Door heating system

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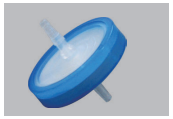

C.Over temp. protection system

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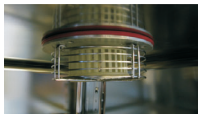

Pollution proof control

A.90 degree high temp. high humidity sterilization system (RHP)

- It can thoroughly sterilize the chamber (Including temp. sensor, CO_2 concentration sensor, fan, shelves and brackets etc) with high temp and high humidity. It eliminates bacteria, mold, mycoplasma etc microbiology those will pollute the microorganisms cell culture and provides a safe experiment environment.

B.HEPA efficient filters

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Cycle fan speed adjustable automatically

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CO_2 inlet control system

- We supply pressure release valve together with the equipment. It can control the pressure stable.
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Safe Functions

- High and low temp. and over temp. alarm
- Door temp. sensor failure alarm
- CO_2 condensation too high or too low alarm
- Door open too long alarm
- Chamber sensor failure alarm
- Over temp sensor failure alarm
- Independent temp. limiter alarm
- Disinfection and sterilization status reminder

Documentation and failure diagnostic display (Option)

- All data can be stored through RS485 port, if any failures, user can read the diagnostic message and data from computer at any time.

Technical parameter

Model	BPN-40CRH	BPN-80CRH	BPN-150CRH	BPN-190CRH	BPN-240CRH
Electrical requirement	AC220V/50Hz				
Input power	350W	500W	750W	750W	950W
Heating power	Air jacket micro computer PID contro				
Temp. control range	RT+5 - 55℃				
Work environment temp	+5 - 30℃				
Temp. accuracy	±0.1℃				
CO_2 control range	0 - 20%				
CO_2 control accuracy	±0.1% (IR sensor)				
CO_2 restore time	(Door open 30s, recovery to 5%) ≤3min				
Temp. restore time	(Door open 30s, recovery to 37℃) ≤ 8min				
Related humidity	Nature vaporate > 95% (Can equip with related humidity digital display)				
Volume	40L	80L	155L	190L	240L
Chamber size W×D×H(mm)	400×286×350	400×450×500	480×530×610	520×530×390	600×630×670
Overall size W×D×H(mm)	590×440×576	590×687×790	670×767×880	708×710×1030	790×837×940
Standard shelves qty	2pcs		3 pcs		
Sterilization	UV sterilization+HEPA filter				

Note: All parameters are measured at 25℃