

# CO<sub>2</sub> /O<sub>2</sub> Multi-gas Incubators | MCO-170M/MCO-170ML

## InCu-saFe® Construction for Germicidal Protection

PHCbi offers the exclusive use of inCu-saFe® copper-enriched stainless steel alloy interior surfaces to eliminate contamination sources such as mold, spores, and other contaminating spills while providing a noncorrosive environment, and to mitigate the effect of airborne contaminants introduced through normal use.

## SafeCell UV Decontamination\*

Isolated Ultra Violet (UV) lamp decontaminates circulating air and the humidity water reservoir without harming the cultured cells. The 5,000 hour UV lamp provides long-term maintenance free service without the ozone production. The UV lamp also provides easy access to an effective 24 hour chamber decontamination feature through the touch panel controller.

\*The optional MCO-170UVS will add the UV function.

## Precision Gas Sensors IR CO<sub>2</sub> and Zirconia O<sub>2</sub>

The IR CO<sub>2</sub> sensor offers continuous calibration for excellent control and accuracy. This ceramic sensor is not affected by moderate temperature and humidity changes and is linked to the P.I.D. controller for fast recovery. As CO<sub>2</sub> and pH levels are key components for proper tissue culture, "Real Time" recovery and monitoring of CO<sub>2</sub> levels provide better culture outcomes. A Zirconia O<sub>2</sub> sensor controls oxygen within a 1-18% / 22-80% range.

Model Number		MCO-170M-PK	MCO-170ML-PE	MCO-170ML-PA
External dimensions [W x D x H] <sup>1)</sup>	mm	490 x 523 x 665		
Internal dimensions [W x D x H]	mm	620 x 730 x 905		
Volume	litres	161		
Net weight	kg	77		
<b>Performance</b>				
Temperature control range and fluctuation	°C	AT +5 to +50 <sup>2)</sup>		
Temperature uniformity <sup>3)</sup>	°C	±0.25		
CO <sub>2</sub> setting range and fluctuation <sup>3)</sup>	%	0 to 20, ±0.15		
O <sub>2</sub> setting range and fluctuation <sup>3)</sup>	%	1 to 18, 22 to 80, ±0.20		
Humidity level and fluctuation	% RH	95 ±5 (Natural evaporation with humidifying pan)		
<b>Control</b>				
Temperature sensor		Thermistor		
Sensor	CO <sub>2</sub> , O <sub>2</sub>	Dual IR, Stabilised Zirconia		
Display		Digital (white graphic OLED) readable to 0.1 increments		
<b>Construction</b>				
Exterior material		Painted steel (rear cover not painted)		
Interior material		Stainless steel copper-enriched alloy		
Insulation material		Styrene Acrylonitrile copolymer		
Heating method		Direct Heat & Air Jacket System		
Outer door	qty	1 (Field reversible door)		
Inner door	qty	1 (tempered glass)		
Shelves	qty	3 x stainless steel copper-enriched alloy		
Shelf dimensions [W x D x H]	mm	475 x 450 x 12		
Max. load-per shelf	kg	7		
Access port	qty	1 (on the back side / Ø 30 mm)		
<b>Alarms (V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm)</b>				
Power failure		R		
Out of temperature setting		V-B-R		
High temperature		V-B-R		
High/Low gas density		V-B-R		
Door open		V-B		
<b>Electrical and Noise Level</b>				
Power supply	V	220	220-240	110-120
Frequency	Hz	60	50/60	60
Power Consumption [230V/50Hz]	kWh/day	2.021 [during cultivation]	0.493 [during decontamination cycle]	
Noise level <sup>4)</sup>	dB [A]	25		
<b>Options</b>				
UV system set		MCO-170UVS-PA / MCO-170UVS-PE		
H <sub>2</sub> O <sub>2</sub> decontamination kit <sup>5)</sup>		MCO-170HB-PA / MCO-170HB-PE		
Electric door lock with password <sup>5)</sup>		MCO-170EL-PW		
H <sub>2</sub> O <sub>2</sub> generator <sup>5)</sup>		MCO-HP-PW		
H <sub>2</sub> O <sub>2</sub> reagent		MCO-H2O2-PV		
CO <sub>2</sub> /N <sub>2</sub> gas pressure regulator		MCO-010R-PW		
STD gas auto-calibration kit		MCO-SGP-PW		
Automatic CO <sub>2</sub> cylinder changeover system		MCO-21GCP-PW		
Tray		MCO-170ST-PW (same as that of standard accessory)		
Double stacking bracket		MCO-170PS-PW		
Stacking plate		MCO-170SB-PW		
Roller base		MCO-170RB-PW		
<b>Optional Communication Systems</b>				
Digital interface [RS232C/RS485] <sup>6)</sup>		MTR-480-PW		
Ethernet interface [LAN] <sup>6)</sup>		MTR-L03-PW		
Analogue interface [4-20 mA]		MCO-420MA-PW		
<b>Quality Management System<sup>7)</sup></b>				
Certification		MCO-170M-PK	MCO-170ML-PE	MCO-170ML-PA
		ISO13485		ISO9001

1) External dimensions of main cabinet only, excluding handle and other external projections.

2) When set temperature is 37°C, ambient temperature must be 32°C or less. Regardless of ambient temperature, the maximum of temperature control range is always 50°C.

3) The measurement condition complies with PHCbi specified measuring method.

4) Nominal value background noise 20 dB(A).

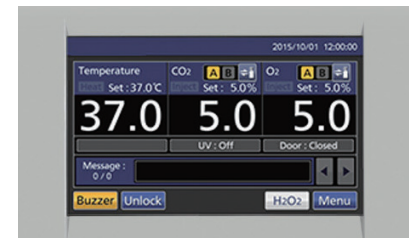
5) MCO-170M requires MCO-170HB, MCO-170EL, MCO-HP and UV option for H<sub>2</sub>O<sub>2</sub> decontamination.

6) Only for the data acquisition system MTR-5000 user.

7) MCO-170ML is for laboratory use.

- The optimum performance may not be obtained if the ambient temperature is not above 15°C.
- Appearance and specifications are subject to change without notice.

**Caution:** PHC Corporation guarantees this product under certain warranty conditions. However, please note that PHC Corporation shall not be responsible for any loss or damage to the contents stored in the product.

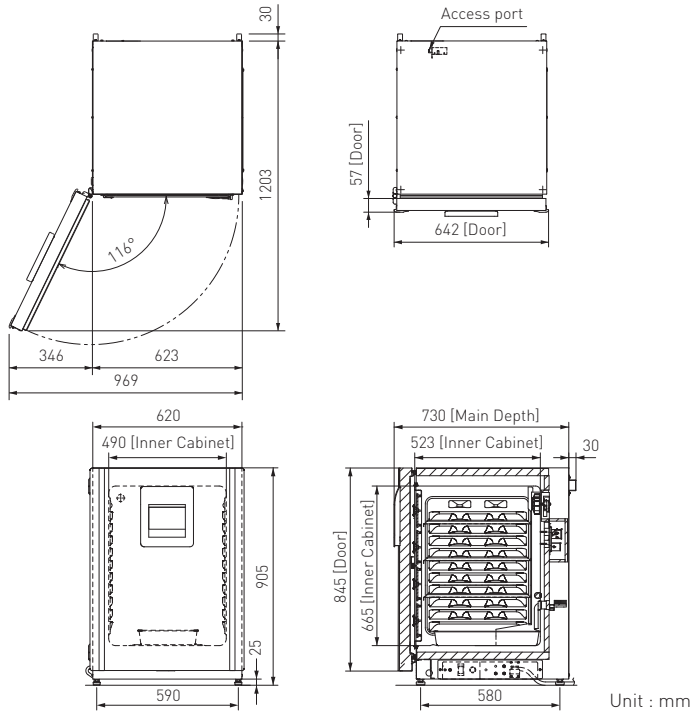


## Reliable controllability and data log function.

Large colour LCD touchpanel is accurately controlled even with a gloved hand, while the USB memory port makes transferring logged data of product's operational status to a PC convenient.



Dimensions

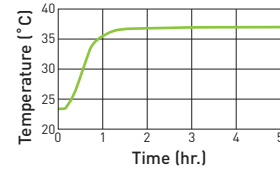


Unit : mm

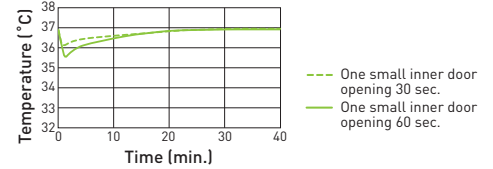
Performance Data

AT23°C, SV37°C, CO<sub>2</sub>: 5 %, O<sub>2</sub>: 5 %, 220V/50Hz, no load

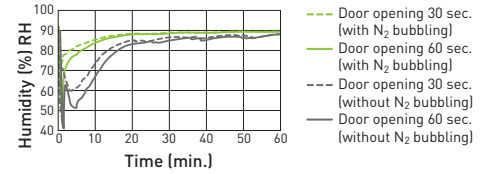
Temperature pull-up characteristics



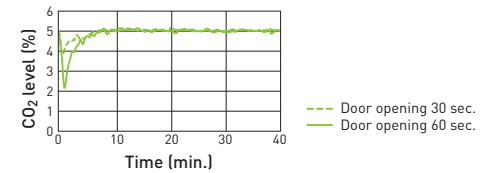
Temperature recovery characteristics



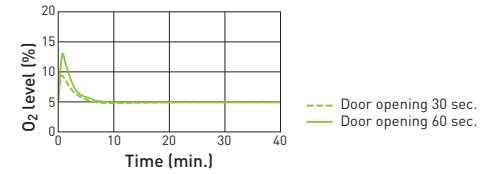
Humidity recovery characteristics



CO<sub>2</sub> level recovery characteristics

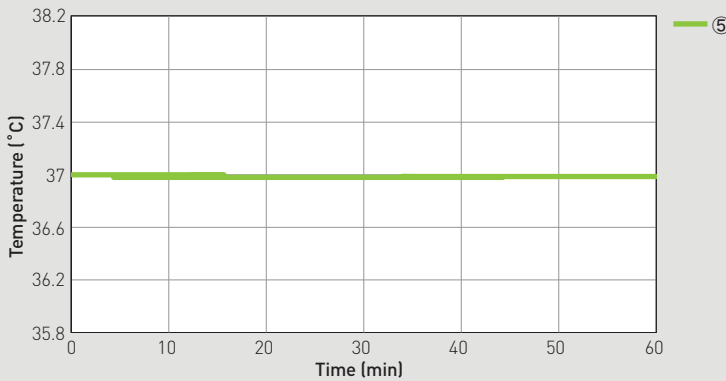


O<sub>2</sub> level recovery characteristics



Temperature Stability

Condition: SV37°C, AT23°C, CO<sub>2</sub> 0%, O<sub>2</sub> 20%, 230V/50Hz, no load



Internal Temperature Uniformity (Reference Data)

Distribution data

Temperature of the cycle in each area (SV37°C, air temperature)

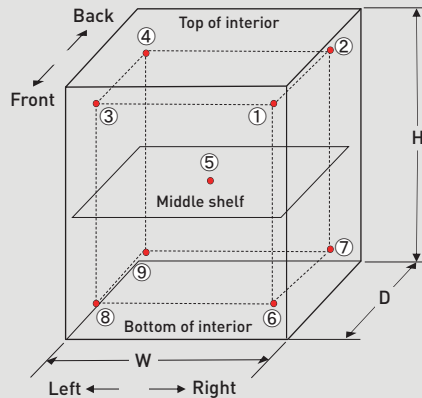
Conditions

Load: Unloaded

Ambient temperature 23°C, CO<sub>2</sub> 0%, O<sub>2</sub> 20%, 220V/50Hz Unit: °C

	①	②	③	④	⑤	⑥	⑦	⑧	⑨
Chamber temp. at nine point (Ave.) <Pt:100Ω>	37.30	37.03	37.16	36.94	36.99	36.96	37.00	36.99	36.94

Temperature uniformity - 9 points measuring



(Note) Disclaimer

- Specification may change without notice.
- The performance data was measured by inhouse test data of PHC.
- The Performance data is a reference data and not guaranteed.
- Not all the products available in all countries.