

MCO-50AICL-PA

1.8 cu.ft. | 50 L



MCO-50AICL-PA

cellIQ™

CO₂ Incubator



The Cell-IQ MCO-50AICL-PA incubator is engineered to precisely and accurately control CO₂ and temperature for optimal culturing conditions. This incubator features standard and optional passive and active contamination mitigation systems with a three-hour H₂O₂ vapor option for thorough and complete resolution of bacteria and viruses in a compact design that can be double or triple stacked.

Responsive Performance

A stable and uniform temperature is maintained by the Direct Heat and Air Jacket system. CO₂ is quickly restored to setpoints after door openings, while relative humidity returns to an elevated state to prevent media desiccation. A streamlined interior maximizes space and reduces contamination risk while improving ease of maintenance. A Peltier dew stick provides optimal humidity control by removing condensation from the interior chamber.

Contamination Control

Exclusive inCu-saFe® alloy interior provides the germicidal properties of copper with the corrosion resistance of stainless steel. Optional SafeCell™ UV light, safely destroys contaminants at the humidification source from behind a plenum wall. A high-speed H₂O₂ vapor decontamination option utilizes a combination of vaporized hydrogen peroxide and UV light to permeate and safely clean the chamber in less than 3 hours to achieve a minimal 6 log reduction of major contaminants. H₂O₂ vapor is reduced to water vapor by the UV light.

Event Management

The microprocessor controller manages and records incubator functions and user inputs through an arrow prompted touchscreen menu. Events and parameters include temperature, CO₂, humidity, door open/close status and timing, UV status and parameter deviation alarms. Dual infrared CO₂ sensor maintains setpoint to within 0.15% or better and requires minimal calibration.



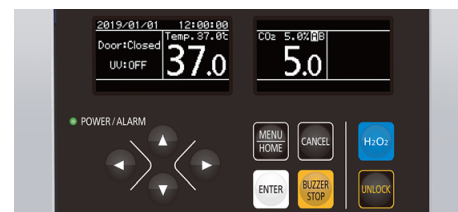
Precision Gas Sensor Dual IR CO₂

Unaffected by temperature or humidity changes, the dual infrared CO₂ sensor continuously calibrates for control and accuracy. Dual sensors deliver real-time chamber CO₂ density readings for optimal recovery after door openings. A white LED graphic user interface control panel delivers full control over inner chamber environment and alarms.



Easy to Clean

Integrated inCu-saFe shelf design facilitates a seamless interior chamber that mitigates contamination while remaining easy to clean and remaining corrosion free. Shelf channels are molded into the sidewalls, minimizing moving parts and eliminating the need for brackets and clips.



Advanced Touchpanel Controller

An intuitive controller provides full control over interior incubator chamber parameters. Temperature, CO₂ and humidity setpoints and alarm deviations are controlled on a white LED graphic user interface control panel for ease of use, even with gloved hands. Standard USB data port permits convenient transfer of logged performance.

Contact your local ESBE representative for more information or visit esbe.com

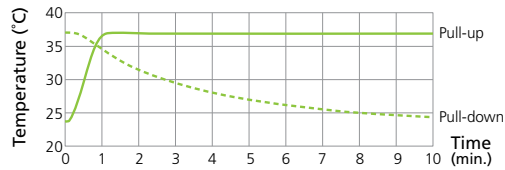
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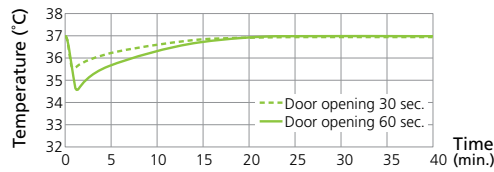
Time-Saving Decontamination

The high-speed decontamination system uses vaporized hydrogen peroxide and UV light. It cleans the chamber of the incubator safely in less than 3 hours, achieving a minimal 6 log reduction of all contaminants.

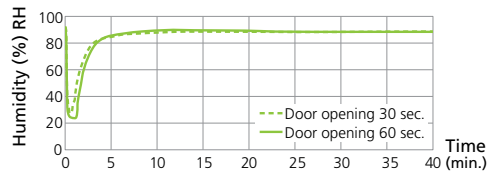
Temperature Pull-Down/Pull-Up Characteristics



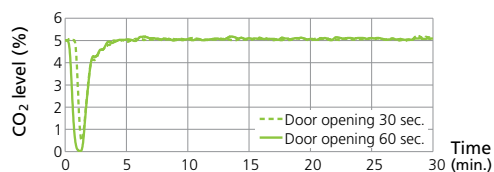
Temperature Recovery Characteristics



Humidity Recovery Characteristics

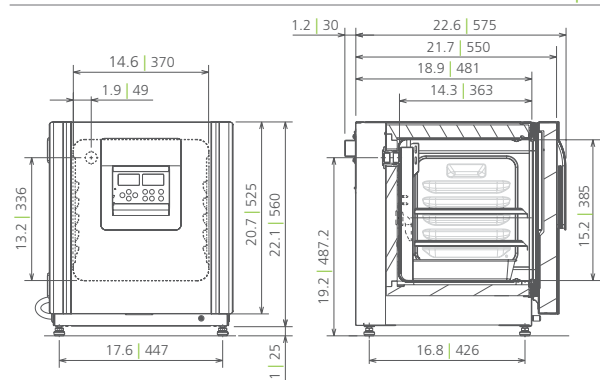


CO₂ Level Recovery Characteristics



Dimensions

Unit : inch | mm



Contact your local ESBE representative for more information or visit esbe.com

Model Number	MCO-50AICL-PA	With Optional UV Decontamination	With Optional H ₂ O ₂ Decontamination	
External Dimensions (W x D x H) ¹⁾	inches mm	18.9 x 21.7 x 23.0	480 x 550 x 585	
Internal Dimensions (W x D x H)	inches mm	14.6 x 14.3 x 15.2	370 x 363 x 385	
Volume	cu. ft. liters	1.8	50	
Net Weight	lbs kg	99	45	
Performance				
Warranty ²⁾		3 years parts and labor		
Temperature Control Range and Fluctuation ³⁾	°C	+5 above ambient to +50, ± 0.1		
Temperature Uniformity ³⁾	°C	± 0.25		
CO ₂ Control Range and Fluctuation ³⁾	%	0 to 20, ± 0.15		
Humidity Level & Fluctuation	% RH	95 at 37°C, ± 5 (natural evaporation with humidifying pan)		
Control				
Controller		Microprocessor – digital with soft keys		
Temperature Sensor		Thermistor		
Display	qty	White graphic OLED – (temperature, CO ₂) readable to 0.1 increments		
Sensor	CO ₂	Dual IR		
Construction				
Exterior Material		Painted steel (rear cover coated steel)		
Interior Material		Stainless steel copper enriched alloy		
Outer Door	qty	1; Field reversible		
Inner Door	qty	1; Sealing tempered glass with positive latch		
Humidity Pan		1; Stainless steel		
Shelves	qty	2; Stainless steel copper enriched alloy		
Shelf Dimension (W x D x H)	inches mm	13.9 x 12.1 x 0.5 353 x 308 x 12		
Max. Load per Shelf	lbs kg	15.4 7		
Max. Total Load	lbs kg	30.9 14		
Max. Shelf Capacity	qty	5		
Access Port / Position	qty	1; On back wall, upper left side		
Access Port Diameter	inches mm	1.2 30 with silicone (non-VOC) stopper		
Leveling Feet	qty	4		
Decontamination Control				
InCu-safe Chamber, Air Plenum and Shelves	passive	Included (stainless steel copper enriched alloy)		
SafeCell UV Light System	passive/active	Optional	Included	Included
Hydrogen Peroxide (H ₂ O ₂) Vapor	active	Optional	Optional	Included
Alarms (V=Visual Alarm, Buzzer Alarm, R=Remote Alarm)				
Power Failure		R		
Temperature Deviation	high	V-B-R		
Gas Deviation	CO ₂	V-B-R		
Supply Empty	CO ₂	V-B-R		
Door Open		V-B		
Electrical and Noise Level				
Power Supply		115V, 1Ø, 60Hz, NEMA 5-15P requires NEMA 5-15R receptacle		
Noise Level ⁴⁾	dB(A)	29		
Options				
SafeCell UV Light System		MCO-170UVS-PA	Included	Included
Hydrogen Peroxide (H ₂ O ₂) Vapor Board		MCO-50HB-PW ⁵⁾	MCO-50HB-PW ⁵⁾	Included ⁵⁾
Outer Door–Password Access Electronic Lock		MCO-170EL-PW ⁵⁾	MCO-170EL-PW ⁵⁾	Included ⁵⁾
H ₂ O ₂ Vapor Generator			MCO-50HP-PW ⁵⁾	
H ₂ O ₂ Reagent	package of 6		MCO-5H2O2-PV	
CO ₂ / N ₂ Gas Pressure Regulator	psi		0 – 15; MCO-100L	
Automatic CO ₂ Cylinder Changeover System			MCO-50GC-PW	
4-20mA Analog Output			MCO-420MA-PW	
inCu-safe Shelf		MCO-50ST-PW (stainless steel copper enriched alloy)		
Double Stacking Bracket ⁶⁾		MCO-170PS-PW (two required for stacking three MCO-50 series incubators)		
Roller Base		MCO-50RB-PW		
Stacking Plate		MCO-50SB-PW		
Optional Communication System				
Wireless, Cloud-Based, Automatic Data Management		LabAlert® Monitoring System		
Quality Management System				
Certification		QPS Listed		

¹⁾ Exterior dimensions of main cabinet only, excluding handle and other external projections
²⁾ Current warranty offered at time of printing and may be subject to change; US and Canada only
³⁾ Ambient temperature 23°C, setting 37°C, CO₂ 5%, no load, air temperature measured at incubator center
 • MCO-50AICL-PA is for laboratory use
 • The optimum performance may not be obtained if the ambient temperature is not above 15°C
⁴⁾ Nominal value – Background noise 20 dB(A)
⁵⁾ MCO-50AICL-PA requires MCO-50HB-PW, MCO-170EL-PW, MCO-50HP-PW and MCO-170UVS-PA for H₂O₂ decontamination
⁶⁾ If stacking two incubators, make sure the double stacking dedicated secure hardware and spacer are used
 Note: Additional options available.

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MCO-50M-PA

1.8 cu.ft. | 50 L



MCO-50M-PA

cellIQ™

Multigas (CO₂/O₂) Incubator



The Cell-IQ MCO-50M-PA multigas incubator is engineered to precisely and accurately control CO₂, O₂, and temperature for optimal culturing conditions. Contamination control is achieved through multiple passive and active decontamination capabilities in a compact design. Multiple units can be double, or triple stacked for a range of applications that demand sample isolation, including stem cell research and *in vitro* fertilization.

Responsive Performance

A stable and uniform temperature is maintained by the Direct Heat and Air Jacket system. CO₂ and O₂ are quickly restored to setpoints after door openings, while relative humidity returns to an elevated state to prevent media desiccation. A streamlined interior maximizes space and reduces contamination risk while improving ease of maintenance. A Peltier dew stick provides optimal humidity control by removing condensation from the interior chamber.

Contamination Control

Exclusive inCu-saFe® alloy interior provides the germicidal properties of copper with the corrosion resistance of stainless steel. Optional SafeCell™ UV light, safely destroys contaminants at the humidification source from behind a plenum wall. A high-speed H₂O₂ vapor decontamination option utilizes a combination of vaporized hydrogen peroxide and UV light to permeate and safely clean the chamber in less than 3 hours to achieve a minimal 6 log reduction of major contaminants. H₂O₂ vapor is reduced to water vapor by the UV light.

Event Management

The microprocessor controller manages and records incubator functions and user inputs through an arrow prompted touchscreen menu. Events and parameters include temperature, CO₂, O₂, humidity, door open/close status and timing, UV status and parameter deviation alarms. Precision CO₂ and O₂ sensors maintain setpoints to within 0.15% and 0.2% respectively.



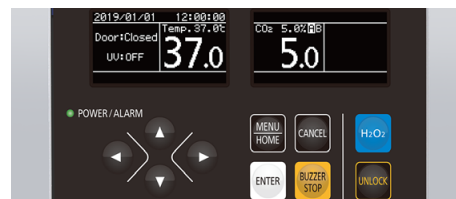
Precision Gas Sensors Dual IR CO₂ and Zirconia O₂

Unaffected by temperature or humidity changes, the dual infrared CO₂ sensor continuously calibrates for control and accuracy. The solid-state Zirconia sensor delivers a long-term precise and accurate oxygen control range of 1% to 18% and 22% to 80% without periodic calibration. A white LED graphic user interface control panel delivers full control over inner chamber environment and alarms.



Easy to Clean

Integrated inCu-saFe shelf design facilitates a seamless interior chamber that mitigates contamination while remaining easy to clean and remaining corrosion free. Shelf channels are molded into the sidewalls, minimizing moving parts and eliminating the need for brackets and clips.



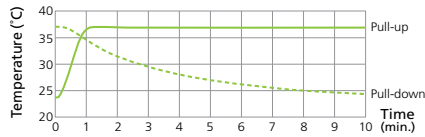
Advanced Touchpanel Controller

An intuitive controller provides full control over interior incubator chamber parameters. Temperature, CO₂, O₂ and humidity setpoints and alarm deviations are controlled on a white LED graphic user interface control panel for ease of use, even with gloved hands. Standard USB data port permits convenient transfer of logged performance.

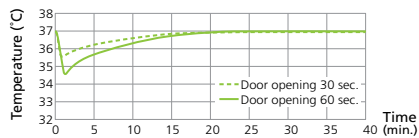
Time-Saving Decontamination

The high-speed H₂O₂ vapor decontamination system uses a combination of vaporized hydrogen peroxide and UV light to permeate and safely clean the chamber in less than 3 hours to achieving a minimal 6 log reduction of major contaminants. H₂O₂ vapor is reduced to water vapor by the UV light following the nebulizer sequence.

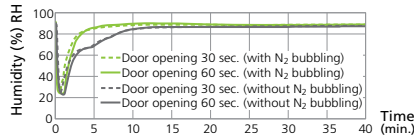
Temperature Response



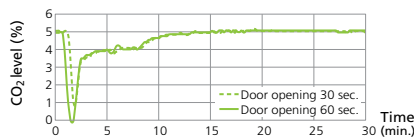
Temperature Recovery



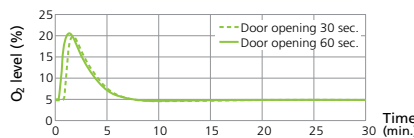
Humidity Recovery



CO₂ Recovery

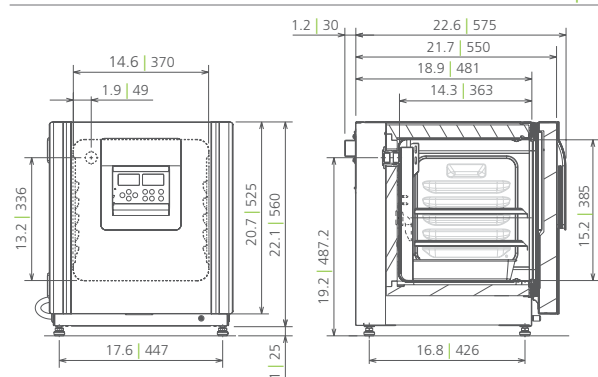


O₂ Recovery



Dimensions

Unit : inch | mm



Contact your local ESBE representative for more information or visit esbe.com

Model Number	MCO-50M-PA	With Optional UV Decontamination	With Optional H ₂ O ₂ Decontamination	
External Dimensions (W x D x H) ¹⁾	inches mm	18.9 x 21.7 x 23.0 480 x 550 x 585		
Internal Dimensions (W x D x H)	inches mm	14.6 x 14.3 x 15.2 370 x 363 x 385		
Volume	cu.ft. liters	1.8 50		
Net Weight	lbs kg	101 46		
Performance				
Warranty ²⁾		3 years parts and labor		
Temperature Control Range and Fluctuation ³⁾	°C	+5 above ambient to +50, ± 0.1		
Temperature Uniformity ³⁾	°C	± 0.25		
CO ₂ Control Range and Fluctuation ³⁾	%	0 to 20, ± 0.15		
O ₂ Control Range and Fluctuation ³⁾	%	1% to 18%, 22% to 80% ± 0.2		
Humidity Level & Fluctuation	% RH	95 at 37°C, ± 5 (natural evaporation with humidifying pan)		
Control				
Controller		Microprocessor – digital with soft keys		
Temperature Sensor		Thermistor		
Display	qty	White graphic OLED – (temperature, CO ₂ , O ₂) readable to 0.1 increments		
Sensor	CO ₂ O ₂	Dual IR Stabilized zirconia		
Construction				
Exterior Material		Painted steel (rear cover coated steel)		
Interior Material		Stainless steel copper enriched alloy		
Outer Door	qty	1; Field reversible		
Inner Door	qty	1; Sealing tempered glass with positive latch		
Humidity Pan		1; Stainless steel		
Shelves	qty	2; Stainless steel copper enriched alloy		
Shelf Dimension (W x D x H)	inches mm	13.9 x 12.1 x 0.5 353 x 308 x 12		
Max. Load per Shelf	lbs kg	15.4 7		
Max. Total Load	lbs kg	30.9 14		
Max. Shelf Capacity	qty	5		
Access Port / Position	qty	1; On back wall, upper left side		
Access Port Diameter	inches mm	1.2 30 with silicone (non-VOC) stopper		
Leveling Feet	qty	4		
Decontamination Control				
inCu-safe Chamber, Plenum, Shelves, Shelf Channels	passive	Included (stainless steel copper enriched alloy)		
SafeCell UV Light System	passive/active	Optional	Included	Included
Hydrogen Peroxide (H ₂ O ₂) Vapor	active	Optional	Optional	Included
Alarms (V=Visual Alarm, Buzzer Alarm, R=Remote Alarm)				
Power Failure				R
Temperature Deviation	high			V-B-R
Gas Deviation	CO ₂ O ₂			V-B-R V-B-R
Supply Empty	CO ₂			V-B-R
Door Open				V-B
Electrical and Noise Level				
Power Supply		115V, 1Ø, 60Hz, NEMA 5-15P requires NEMA 5-15R receptacle		
Noise Level ⁴⁾	dB(A)	29		
Options				
SafeCell UV Light System		MCO-170UVS-PA	Included	Included
Hydrogen Peroxide (H ₂ O ₂) Vapor Board		MCO-50HB-PW ⁵⁾	MCO-50HB-PW ⁵⁾	Included ⁵⁾
Outer Door–Password Access Electronic Lock		MCO-170EL-PW ⁵⁾	MCO-170EL-PW ⁵⁾	Included ⁵⁾
H ₂ O ₂ Vapor Generator			MCO-50HP-PW ⁵⁾	
H ₂ O ₂ Reagent	package of 6		MCO-5H2O2-PV	
CO ₂ N ₂ Gas Pressure Regulator	psi		0 – 15; MCO-100L	
Automatic CO ₂ Cylinder Changeover System			MCO-50GC-PW	
4-20mA Analog Output			MCO-420MA-PW	
inCu-safe Shelf		MCO-50ST-PW (stainless steel copper enriched alloy)		
Double Stacking Bracket ⁶⁾		MCO-170PS-PW (two required for stacking three MCO-50 series incubators)		
Roller Base			MCO-50RB-PW	
Stacking Plate			MCO-50SB-PW	
Optional Communication System				
Wireless, Cloud-Based, Automatic Data Management			LabAlert® Monitoring System	
Quality Management System				
Certification			QPS Listed	

¹⁾ Exterior dimensions of main cabinet only, excluding handle and other external projections
²⁾ Current warranty offered at time of printing and may be subject to change; US and Canada only
³⁾ Ambient temperature 23°C, setting 37°C, CO₂ 5%, no load, air temperature measured at incubator center
 • The optimum performance may not be obtained if the ambient temperature is not above 15°C
⁴⁾ Nominal value – Background noise 20 dB(A)
⁵⁾ MCO-50M-PA requires MCO-50HB-PW, MCO-170EL-PW, MCO-50HP-PW and MCO-170UVS-PA for H₂O₂ decontamination
⁶⁾ If stacking two incubators, make sure the double stacking dedicated secure hardware and spacer are used
 Note: Additional options available.

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MPR-N250FH-PA

Pharmaceutical Refrigerator with Freezer

+2°C to +14°C Refrigerator
-30°C to -20°C Freezer

MPR-N250FH-PA
MPR-N250FSH-PA

6.3 cu.ft. | 179 L
2.8 cu.ft. | 80 L



The PHCbi brand Pharmaceutical Refrigerator with Freezer offers a complete storage solution in one cabinet. The MPR-N250FH/FSH-PA combines high-performance refrigeration with a -30°C freezer in a small footprint for flexible, reliable and convenient vaccine and biological material storage. Refrigerated and frozen products can be stored within a single footprint. Natural refrigerants minimize environmental impact for a sustainable storage solution.

Excellent Uniformity

The refrigerator and freezer compartments provide excellent uniformity throughout. Temperatures remain stable wherever products are stored, even in a loaded chamber. The refrigerator is engineered to prohibit inadvertent freezing of temperature sensitive vaccines.

Independent Refrigeration Systems

The single cabinet includes two independent temperature controlled chambers with separate refrigeration systems. The refrigerator section operates on a high efficiency inverter compressor running at variable speed upon demand to reduce energy consumption. New EPA SNAP compliant refrigerants help meet facility sustainability goals and lower global environmental impact.

Security Control and Monitoring

The microprocessor controller and softkey interface are door mounted at eye level. An OLED alphanumeric display provides convenient, secure user management. Refrigerator and freezer temperature can be displayed simultaneously or individually. Minimum/maximum temperatures are automatically displayed every 24 hours. All alarm conditions are displayed and recorded. Data transfer is available through a USB port.



Temperature Distribution

Temperature uniformity is maintained at all storage levels even at full load conditions. This provides even, horizontal airflow across the solid adjustable glass shelves at all shelf levels to assure optimum temperature uniformity under full load conditions.



Natural Refrigerants

Hydrocarbon refrigerants help achieve facility sustainability objectives by minimizing any environmental impact without compromising cooling performance, ambient tolerance and recovery speeds following door openings.



Easy to Use, Intuitive Operation

Adjustable audible and visual alarms are standard, along with integrated system diagnostics and predictive performance supervision. The password-protected control panel provides security and minimizes risk of accidental changes in setpoint.

Pharmaceutical Refrigerator with Freezer

MPR-N250FH-PA
MPR-N250FSH-PA



Slim Profile Cabinet Design

The space saving, ergonomic design comes in a solid door model (MPR-N250FSH-PA) or model MPR-N250FH-PA with a triple-paned viewing window. The compact footprint permits easy installation in narrow aisles and hallways for greater flexibility. Independent key lock increases security on the refrigerator and freezer compartments.

Maximized Storage

Both compartments of this model feature a spacious capacity within the overall small footprint. The refrigerator compartment has an effective capacity of 179L and includes three adjustable, tempered glass shelves. The solid shelf construction eliminates tipping of bottles and vials. A rear wall LED light is included for product viewing. The freezer compartment has an effective capacity of 80L and includes one hard steel wire polyethylene coated shelf.

Model MPR-N250FSH-PA with solid door for storage of light-sensitive products.

Defrost Methods

Both models include manual defrost for the freezer compartment. The refrigerator compartment includes an automatic defrost, which activates electronically when needed. The refrigerator evaporator operates above freezing at all times. This prevents vaccines and lab supplies from freezing.

Dimensions

Unit : inch | mm

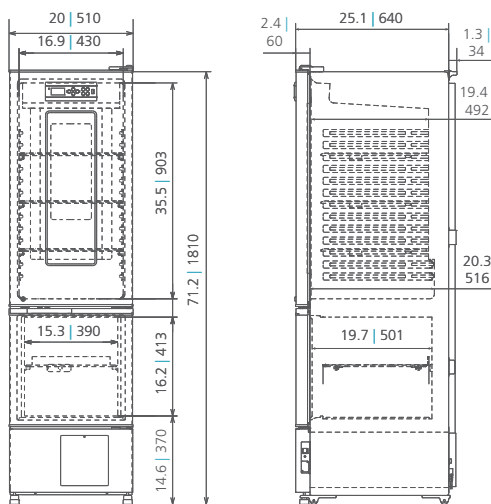



Illustration shown for Model MPR-N250FH-PA. Dimensions apply to models with windows and models with solid doors.

Model Number		MPR-N250FH-PA refrigerator / freezer	MPR-N250FSH-PA refrigerator / freezer
Exterior Dimensions (W x D x H) ¹⁾	inches mm	20 x 25.1 x 71.2 510 x 640 x 1810	
Interior Dimensions (W x D x H)	inches mm	16.9 x 20.3 x 35.5 430 x 516 x 903 15.3 x 19.7 x 16.2 390 x 501 x 413	
Volume	cu. ft. liters	6.3 179 / 2.8 80	
Net Weight	lbs kg	210 95	201 91
Performance			
Warranty ²⁾		3 years parts and labor	
Cooling Performance ³⁾	°C	+2 to +14 (max +2) / -30 to -20 (max -30)	
Temperature Setting Range	°C	+2 to +14 / -30 to -20	
Control			
Controller		Microprocessor, softkey data entry, password protected	
Display		White graphic OLED	
Temperature Display		Select refrigerator, freezer or concurrent	
USB Logging Function		Logs 3 months of data at 1 minutes intervals	
Refrigeration			
Compressor	W	(1) 120, inverter / (1) 120	
Natural Refrigerant		HC R-600a / HC R-290	
Construction			
Exterior and Interior Material		Colored steel / ABS resin (REF) Painted steel (FRZ)	
Insulation Material, SNAP Compliant		Polyurethane foam-in-place, CFC free	
Key Lock		(1) Standard, locks top refrigerator and lower freezer	
Shelves	qty	(3) Tempered glass, adjustable / (1) PE coated wire	
Shelf Dimension (W x D)	inches mm	14.6 x 14.96 371 x 380	
Max. Load Per Shelf	lbs kg	44 20 / 22 10	
Max. Load – Total	lbs kg	132 60 / 66 30	
Access Port	inches mm	(1) Back wall, left 1.2 30 (1) Lower back middle 1.2 30	
Casters	qty	4 (plus 2 leveling feet on front base)	
Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)			
High and Low Temperature		V-B-R-A-D-L	
Power Failure		R	
Power Failer With Optional Battery Kit		V-B-R-L	
Fan, Compressor, Inverter		V-B-R-L	
Sensor Error		V-B-L	
Door Open		V-B-A-D	
Freeze Warning		V-B-R-L	
LED Chamber Lighting		Adjustable on/off/on door opening (refrigerator only)	
Min/Max Temperature Logging		Included	
Remote Alarm Contact		Yes	
Electrical and Noise Level			
Power Supply		115V, 60Hz, 1Ø, NEMA 5-15P, requires NEMA 5-15R receptacle	
Noise Level ⁴⁾	dB (A)	40	
Temperature Recorders			
BTU Output	btu/hr	956	
Circular Type, Dual Pen	6", 7 day circular	MTRC955	
Chart Paper	52 charts per box	C740306REV	
Ink Pen, Red	pack of 6	R252	
Ink Pen, Blue	pack of 6	R252	
Accessories			
Black-Out Panel for Photosensitive Product		MPR-258P-PW	-
Battery Kit For Power Failure Alarm		MPR-4882-PW	
Analog Temperature Transmitter		MTR420MAC	
Optional Communication System			
Wireless, Cloud-Based, Automatic Data Management		LabAlert® Monitoring System	

¹⁾ External dimensions of main cabinet only. Excluding the door handle and other external projections
²⁾ Current warranty offered at time of printing and may be subject to change; US and Canada only
³⁾ Air temperature measured at freezer center, ambient temperature +30°C, no load
⁴⁾ Nominal value – background noise 20 dB(A)

Specifications are subject to change without notice.
 For latest specification information contact PHC Corporation of North America at info@us.phcd.com.



Contact your local ESBE representative for more information or visit esbe.com

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MPR-N450FH | MPR-N450FSH
[Limited countries and regions]

MPR Natural Refrigerant Pharmaceutical Refrigerators with Freezer

+2°C to +14°C Refrigerators
-20°C to -30°C Freezers



462 L (R: 326 L / F: 136 L)

Providing a complete storage solution — refrigerator and freezer in one unit. The MPR-N450FH/MPR-N450FSH combine high-performance refrigeration with a -30°C freezing environment within a small footprint for flexible, reliable and convenient sample storage. Natural refrigerants minimise environmental impact for a sustainable storage solution.



MPR-N450FH

MPR-N450FSH

Natural Refrigerants and Inverter Technology

Naturally occurring hydrocarbon [HC] refrigerants have minimal effect on the environment and are compliant with environmental legislation for climate control. Combined with inverter technology, these refrigerants also provide more efficient cooling without compromising performance and ambient tolerance and recovery speeds following door openings.

Superior Uniformity

The refrigerator provides superior uniformity throughout. Temperatures remain stable wherever products are stored, even in a fully loaded chamber. The refrigerator is engineered to prevent inadvertent freezing of temperature sensitive vaccines.

Security Control and Monitoring

The microprocessor controller and OLED display are door mounted at eye level. Control buttons allow convenient but secure user control. Refrigerator and freezer temperatures can be displayed in 0.1°C increments simultaneously or individually. Minimum/maximum temperatures are automatically displayed every 12/24 hours. All alarm conditions are displayed and recorded. Data transfer is through a USB port.

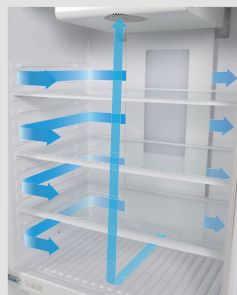
Energy-efficient performance



Natural refrigerants, compressors and integrated electronics combine to achieve facility sustainability objectives by minimising any environmental impact without compromising cooling performance, ambient tolerance and recovery speeds following door openings.

Temperature Distribution

The refrigerator includes a high performance refrigeration system with a forced air, back wall plenum. This provides even, horizontal airflow across the solid, adjustable glass shelves at each shelf level. A uniform freezer temperature is maintained through a cold wall refrigeration system with natural circulation.



Safe & Secure storage



Adjustable audible and visual alarms are standard, along with integrated system diagnostics and predictive performance supervision. The password-protected control panel provides security and minimises risk of accidental changes.

Pharmaceutical Refrigerators with Freezer

With the new platform, the volume of the freezer (-30°C) has increased to 136 L, which is about 60%* larger than the conventional model. By implementing a new platform with improved duct and mechanical layout, storage efficiency increased by 10% per area of storage.

* comparison with MPR-414F.

Ease of Use



Removable glass shelves inside the refrigerator compartment enable easy cleaning. Clear visibility inside the refrigerator compartment is provided by an LED light. Optional containers

for the freezer compartment are available for flexible storage solutions.

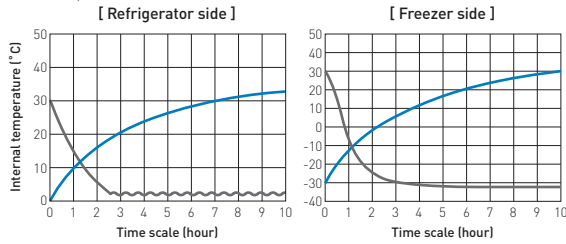
Defrost Methods

The MPR-N450FH/MPR-N450FSH include manual defrost for the freezer compartment. The refrigerator compartment includes automatic defrost which activates electronically when needed. The refrigerator evaporator operates above freezing at all times. This prevents vaccines and lab supplies from freezing.

Performance Data

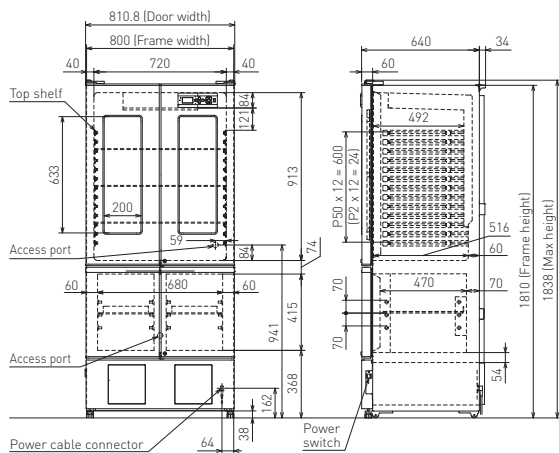
AT30°C Pull-down & Pull-up Temperature (No load)

— Pull-down (220/230/240 V, 50 Hz)
— Pull-up



Dimensions

Unit: mm



Model Number	MPR-N450FH-PE / MPR-N450FSH-PE		
	MPR-N450FH-PA / MPR-N450FSH-PA		
	MPR-N450FH-PK / MPR-N450FSH-PK		
Dimensions	Refrigerator	Freezer	
External dimensions (W x D x H) ¹⁾	mm	800 x 640 x 1810	
Internal dimensions (W x D x H)	mm	720 x 516 x 913	680 x 470 x 415
Volume	litres	326	136
Net weight	kg	129 (FH) / 121 (FSH)	
Performance			
Temperature control range ²⁾	°C	2 to 14	-20 to -30
Control			
Controller	Microprocessor with non-volatile memory		
Display	Digital (White graphic OLED), 1°C (increment of 0.1)		
Temperature sensor	Thermistor		
Refrigeration			
Cooling method	Fan forced air circulation	Direct cooling	
Defrost method	Cyclical defrost	Manual	
Refrigerant	HC refrigerant		
Insulation	PUF		
Construction			
Exterior material	Painted Steel		
Interior material	ABS Resin	Painted Steel	
Outer doors	qty	4 (glass window [2(FH)/0(FSH)])	
Outer door lock		Y	Y
Shelves	qty	Tempered glass (3)	Coated steel wires (2)
Max. load - per shelf	kg	25	15
Access port	qty	R (1) / F (1)	
Access port position	Back		
Access port diameter	Ø mm	30	
Castors	qty	4	
Interior light	LED		
Alarms (V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm, M = Message)			
Power failure ³⁾		R ³⁾	
High temperature		V-B-M-R	
Low temperature		V-B-M-R	
Door open		V-B-M	
Electrical and Noise Level			
Power supply	V	PE: 220/230/240 V, 50 Hz / PA: 115 V, 60 Hz / PK: 220 V, 60 Hz	
Noise level ⁴⁾	dB (A)	41	
Options			
Temperature recorders		-	-
Temperature chart recorders		MTR-0621LH-PE/PA	-
- Chart paper		RP-06-PW	-
- Recorder housing		MPR-S30-PW	-
Circular type chart recorders		MTR-G3504C-PE/MTR-G3504A-PA	
- Chart paper		RP-G3504-PW	
- Ink pen		PG-RB-PW	
- Recorder housing		MPR-S7-PW ⁵⁾	-
Continuous strip type chart recorder		-	MTR-4015LH-PE/PA
- Chart paper		-	RP-40-PW
- Recorder housing		-	MPR-S30-PW
Battery kit for power failure alarm		MPR-48B2-PW	
Containers inside freezer		-	MPR-45FSC-PW
Blackout panel		MPR-45BP-PW	-
Optional Communication Systems			
Digital interface [RS232C/RS485] ⁶⁾		MTR-480-PW	
Ethernet interface [LAN] ⁶⁾		MTR-L03-PW	

PUF = Rigid polyurethane foamed insulation

¹⁾ Exterior dimensions of main cabinet only, excluding external projections - See dimensions drawings on website for full details.

²⁾ Air temperature measured at refrigeration compartment centre and freezer compartment centre, ambient temperature +30°C, no load.

³⁾ Remote alarm includes optional power failure alarm MPR-48B2-PW (B-R alarm).

⁴⁾ Nominal value - Background noise 20dB (A)

⁵⁾ When installing temperature recorder MTR-G3504A, optional mounting hardware is necessary.

⁶⁾ Only for MTR-5000 (data acquisition system) users. 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.

PHCbi

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Prices/specifications are current at the time of printing/publishing, subject to change without notice and are not to be combined with other offers/discounts or contract pricing. Performance data herein is based on independent testing at time of publication. While quantities last.

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PR-L5181W-PA

High Performance Undercounter Refrigerator

+2 to +8°C Undercounter Refrigerator

5.0 cu.ft. | 142 L



PR-L5181W-PA

The PR-L5181W-PA high performance undercounter refrigerator is designed to maintain the +5°C temperature setpoint and $\pm 3^\circ\text{C}$ uniformity necessary for the storage of critical vaccines and biologics. This model is engineered to meet the strict regulatory guidelines of the CDC, ANSI, and NSF in a small footprint. Precision temperature control and uniformity prevent the interior from cooling below freezing and risking vaccine and biologic viability whether the unit is loaded or empty.

Temperature Control Precision

This refrigerator features precise temperature control engineered to meet the current and evolving criteria included in the CDC, NSF, and ANSI guidelines for vaccine storage while requiring less energy than traditional undercounter refrigerators. The purpose-built PR-L5181W-PA is designed to maintain the high performance necessary for valuable inventory.

Ease of Use and Accessibility

With a compact footprint, the PR-L5181W-PA is designed for functional workspaces and fits under most tables, cabinets and lab benches. The solid door protects light-sensitive materials. If a door is left ajar, the self-closing mechanism mitigates scenarios that could result in lost product. An alarm provides an even deeper level of protection. An optional stacking accessory is available to maximize storage capacity when space constraints become a concern.

Temperature Uniformity Even When Loaded

Many high performance refrigerators can maintain precise temperatures when they are empty. The PR-L5181W-PA has been designed to maintain high performance temperature uniformity of $\pm 3^\circ\text{C}$ even when loaded, as often occurs during peak vaccine season.



Energy and Sustainability

This undercounter refrigerator provides energy efficiency and sustainability without compromising performance. Traditional refrigerants have been replaced with environmentally friendly natural refrigerants to meet Significant New Alternatives Policy (SNAP) guidelines for low global warming potential and no ozone-depleting substances.



Microprocessor Control and Alarm

The unit has a door-mounted control with an easy to view LED display that features preset automatic alarm tracking around the temperature setpoint. The alarm is set at +3°C above and below setpoint, consistent with vaccine and high-value product storage requirements.



Cycle Defrost System

The PR-L5181W-PA does not rely solely on a time-based system. Instead, the refrigerator utilizes a sophisticated defrost cycle that only triggers when needed and when the compressor is not running, minimizing temperature spikes often associated with common defrost systems. This innovation provides assurances of optimum temperature control maintenance at all times.

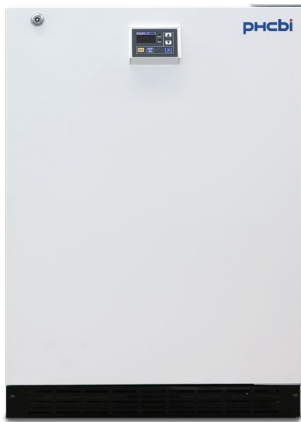
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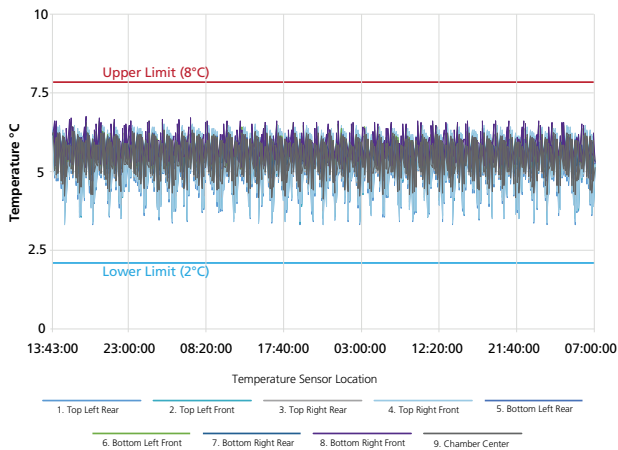
High Performance Undercounter Refrigerator

PR-L5181W-PA



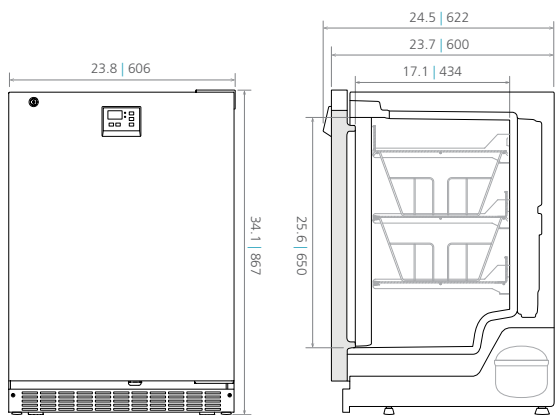
PR-L5181W-PA

Uniformity, Steady State, 5°C



Dimensions

Unit : inch | mm



Model Number		PR-L5181W-PA
Exterior Dimensions (W x D x H) ¹⁾	inches mm	23.8 x 23.7 x 34.1 606 x 600 x 867
Interior Dimensions (W x D x H)	inches mm	19.9 x 17.1 x 25.6 507 x 434 x 650
Volume	cu.ft. liters	5.0 142
Net Weight	lbs kg	100 45
Performance		
Warranty ²⁾		2 years parts / labor
Cooling Performance ³⁾	°C	2 to 8
Temperature Setting Range	°C	2 to 8 in 0.1°C increments
Temperature Control Range ³⁾	°C	2 to 8 in 0.1°C increments
Uniformity	°C	±3
Control		
Controller		Microprocessor
Display		LED
Security		Front panel anti-tamper lockout
Temperature Sensor		Thermistor
Refrigeration		
Refrigeration System		Forced air fin and tube evaporator
Compressor	W	40 (hermetic)
Refrigerant		R-600a
Defrost		Cycle, time actuated, temperature controlled
Insulation Material, SNAP Compliant		HFO foamed-in-place
Construction		
Exterior Material		White PCM galvanized steel, polyester resin baked finish
Interior Material		HFO vacuum formed plastic
Outer Door	qty	Electro galvanized steel
Key Lock	qty	Door lock, top mounted with 2 keys
Shelves	qty	3, coated steel wire
Shelf Dimension (W x D)	inches mm	19.2 x 14.75 487 x 375
Access Port	qty	1 (standard)
Access Port Position		Right side of product
Access Port Diameter	inches mm	1.2 30
Leveling Feet	qty	4
Alarms (V=Visual, B=Buzzer)		
Power Failure		Optional
High Temperature		V (immediate), B (15 minute delay)
Low Temperature		V (immediate), B (15 minute delay)
Door Alarm		V (immediate), B (2 minute delay)
Sensor Failure		V (error code)
Electrical and Noise Level		
Power Supply		115V, 60Hz, 1Ø, NEMA 5-15P, requires NEMA 5-15R receptacle
Options		
Chart Recorder		MTRC955 (remote mounted)
Chart Paper		C738176
Chart Pens		R252
4-20mA Analog Output		MTR420MAC
Stacking Kit		SRFL61PS
Keypad Electric Lock, Other Configurations Available.		ELKPHRFKIT
Optional Communication System		
Wireless, Cloud-Based, Automatic Data Management		LabAlert® Monitoring System

¹⁾ External dimensions of main cabinet only. Depth is 24.5" (622 mm) including the controller
²⁾ Current warranty offered at time of printing and may be subject to change; US and Canada only
³⁾ Air temperature measured at refrigerator center, ambient temperature +24°C, no load

Specifications are subject to change without notice.
 For latest specification information contact PHC Corporation of North America at info@us.phcd.com.
 Performance data herein is based on independent testing at time of publication



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