



MDF-MU539HL-PA

# Biomedical ECO Freezer, -30°C

MDF-MU539HL-PA  
17.8 cu.ft. | 504 L



The PHCbi brand -30°C Biomedical ECO Freezer provides a stable and reliable environment for storing of enzymes, vaccines, pharmaceutical products and other biomedical materials with uniform temperatures. The freezer incorporates a manual defrost that eliminates temperature fluctuation during operation. Configurable temperature ranges from -20°C to -30°C. The double door design only exposes half the stored product when one door is open.

## 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 cooling performance, ambient tolerance and recovery speeds following door openings.

## Safe Sample Storage

The double door design exposes only half the stored product when one door is open. A standard door latch lock adds security, and an optional padlock can be installed to expand the envelope of protection. Protection and safety features include heavy duty, door-mounted sealing gaskets to eliminate cold air loss. High and low temperature deviation alarms warn of temperature setpoint violations and door ajar events.

## ENERGY STAR® Certified <sup>1)</sup>

Power consumption at rated storage temperatures confirms significant energy saving performance of the Biomedical ECO natural refrigerant platform. Power data published herein is based on results of a production freezer tested by an independent third-party for ENERGY STAR certification. Data can be provided upon request.



## Energy Efficient Performance

Natural refrigerant, a high performance inverter compressor, DC condenser fan and integrated electronic controls combine to manage overall performance, protect stored product and lower operating costs by up to 28% compared to conventional models. Performance is rated at 115V, AC, ambient temperature 30°C, with a wide tolerance for high ambient temperatures.



## Microprocessor Controller and Alarms

The microprocessor-based temperature control system with LED display maintains accurate setpoint temperature to within 1°C over a range of -20°C to -30°C. Audible and flashing visual alarm lights supplement the setpoint deviation system to warn of parameter violations, or loss of power.



## Smart Cabinet Design

Space-saving design allows more installation options in crowded labs or warm hallways. Includes 5 adjustable wire shelves, with optional open top bins for common 2" or 3" freezer boxes, as well as miscellaneous goods. High density CFC-free and low GWP foamed-in-place insulation creates a temperature resistant wall structure. Painted steel interior allows easy cleaning.

<sup>1)</sup> <https://www.energystar.gov/productfinder/product/certified-lab-grade-refrigeration/details/2402159>



### Stored Product Protection

The two door Biomedical ECO freezer creates a stable temperature environment in a space-saving upright cabinet designed for flexible storage.

### Manual Defrost Condensate Removal

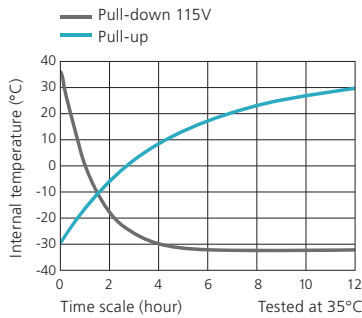
Occasional manual defrosting maintains the most efficient performance. An integrated condensate drain hose permits easy removal of water and stows out of the way when not in use.



Model MDF-MU539HL-PA shown with optional storage bins.

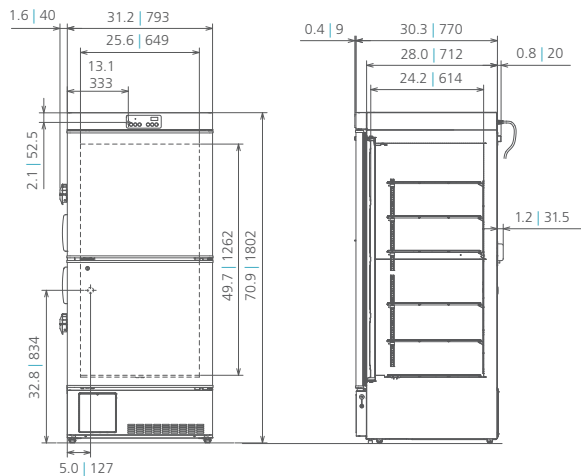
### Temperature Uniformity

Stored product creates a thermal mass that enhances interior temperature uniformity. Multiple interior cold wall surfaces remove heat quickly and efficiently while maintaining uniformity.



### Dimensions

Unit : inch | mm



Model Number		MDF-MU539HL-PA
Exterior Dimensions (W x D x H) <sup>1)</sup>	inches   mm	31.2 x 30.3 x 70.9   793 x 770 x 1802
Interior Dimensions (W x D x H)	inches   mm	25.6 x 24.2 x 49.7   649 x 614 x 1262
Volume	cu. ft.   liters	17.8   504
Net Weight	lbs   kg	317.5   144
Capacity (2" boxes) Bin   Freezer	qty	24   288
Capacity (3" boxes) Bin   Freezer	qty	16   192
Bin Capacity	qty	12
Performance <sup>2) 3) 4)</sup>		
Temperature Control Range	°C	-20 to -40 in 1°C Increments
Uniformity	±	4
Power Consumption	kWh/day	2.54
BTU Nominal	Per hour	478
Noise Level <sup>5)</sup>	dB(A)	42
Control		
Controller		Microprocessor, touchpad data entry, password protected
Display		LED
Temperature Sensor		Thermistor
Refrigeration		
Refrigeration System		Cold wall
Compressor	W	(1) 250 (variable speed-inverter driven)
Refrigerant		CFC-free R-290 - 80 grams
Defrost		Manual
Insulation Material		Rigid polyurethane, foamed-in-place, low GWP
Insulation Thickness	inches   mm	2.8   70
Construction		
Exterior and Interior Material		Painted steel
Door	qty	2
Outer Door - Key Lock	qty	1 (one lock for each door)
Additional Door Lock	qty	Door latch with provision for padlock
Wire Shelves, Vinyl Coated	qty	6 (5 adjustable)
Shelf Dimension (W x D)	inches   mm	24.6 x 20.1   624 x 510
Max. Load per Shelf	lbs   kg	66.1   30
Max. Load - Total Freezer	lbs   kg	396.6   180
Access Port	qty	(1) Standard
Access Port Position		Back wall, left hand corner (facing unit)
Access Port Diameter	inches   mm	1.1   30
Casters	qty	4
Leveling Feet		2 (on front of base)
Alarms (V=Visual, B=Buzzer, R=Remote Alarm)		
Power Failure		V-B-R
High Temperature		V-B-R
Low Temperature		V-B-R
Electrical		
Power Supply		115V, 60Hz, 1Ø, NEMA 5-15P, requires NEMA 5-15R receptacle 8 ft power cord
Max Amps		2.1
Options		
Storage Bin <sup>6)</sup>	Sold in sets of 2	MDF-O5SC-PW (6 sets per cabinet maximum)
Circular Type	6", 7 Day Circular	MTR-G85A-PA w/ fixing plate MPR-S7-PW
Chart Paper	55 charts per box	RP-G85-PW
Ink Pen	pack of 2	PG-R-PW
Optional Communication System		
Wireless, Cloud-Based, Automatic Data Management		LabSViFT Gen 2   LabAlert Monitoring System *
4-20mA output module		MTR-420MA-PA   MTR420MAL- Loop Powered *   MTR420MAC - Equipment Powered*
Certifications and Warranty		
Certification		QPS listed and ENERGY STAR
Warranty <sup>7)</sup>		3 years and parts and labor

<sup>1)</sup> External dimensions of main cabinet only. Excluding the door handle and other external projections  
<sup>2)</sup> The data reflects performance metrics rather than official product specifications. Results from technical data sheet tests should not be used to establish regulatory parameters for specific customer applications.  
<sup>3)</sup> The performance of the freezer will depend on factors such as the volume of customer products, storage configuration, selected options, operating conditions, test methods, and adherence to recommended maintenance practices.  
<sup>4)</sup> Ongoing product improvements may lead to changes or omissions in this technical data sheet without prior notice. PHC Corporation of North America disclaims responsibility for any damage, injury, loss, or expenses arising from the misuse of the information provided.  
<sup>5)</sup> Nominal value- Background noise 20 dB(A)  
<sup>6)</sup> Optional Bin, interior base dimensions 16.45" (418 mm) W x 21.65" (550 mm) F to B, height 6.2" (157.5 mm) H  
<sup>7)</sup> Current warranty offered at time of printing and may be subject to change; US and Canada only.  
 \* Manufactured by others.



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