PHCbi

MDF-C2156VANC-PA | **FZRC8-220**

-150°C Cryogenic Freezer

Safe, Economical Air Phase Cryogenic Storage Without Liquid Nitrogen

8.2 cu. ft. | 231 L

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The PHCbi brand -150°C cryogenic freezer offers air phase cryogenic storage without the need for liquid nitrogen as the primary cooling medium. The hybrid auto-cascade refrigeration system delivers superior uniformity at cryogenic temperatures without stratification.

Reliable Sample Security

Powered by a robust auto-cascade refrigeration system, this chest freezer delivers superior cooling and temperature performance, leading to faster pull-down speeds and unsurpassed temperature uniformity throughout the freezer chamber. Performance and reliability are not dependent on LN_2.

High Capacity Storage, Minimal Footprint

The use of patented VIP Plus cabinet insulation technology dramatically reduces cabinet wall thickness, allowing for higher capacity storage in a smaller footprint. This efficient layout enables storage of up to (165) 2" boxes or (105) 3" boxes, requiring only 13.07 sq.ft (1.15 m²) of lab space.

Safe, Economic Alternative

This innovative PHCbi brand -150°C cryogenic freezer eliminates hazardous operating conditions and frequent maintenance and cost requirements associated with LN_2 storage, and minimizes the possibility of cross-contamination among multiple samples in cryogenic storage.

Energy Efficiency

Energy efficiency in our cryogenic freezers is achieved through balanced temperature performance and power management, making them an economical choice when replacing existing liquid nitrogen freezers or installing new long-term product storage systems.

Precise Temperature Control

The integrated microprocessor-based controller and LCD graphic display enable intuitive management and monitoring of critical set points using a precise platinum RTD sensor, including touch keypads for setting freezer functions. Audible and visual alarms alert the user of out of range conditions.

Extra Protection, Easy Access

An LN_2 back-up system, included standard, adds an extra layer of protection. (Requires connection to external LN_2 supply.) An insulated locking lid with sub-lids minimizes cold air loss during routine access. Composite freezer wall insulation improves tolerance for high ambient temperature.

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Temperature

The graphs below show temperatures at different locations within the chamber. This data demonstrates that 100% of the storage maintains uniform storage temperatures safely below -130°C, while temperature in LN$_2$ vapor system is dependent on storage location.

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Liquid Nitrogen Freezer
Vapor Phase
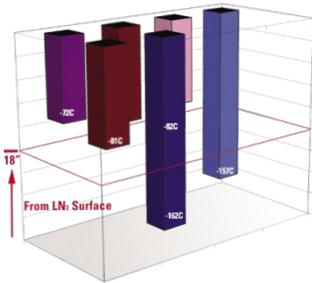
Model MDF-C2156VANC-PA | FZRC8-220
Mechanically Refrigerated Cryogenic Freezer
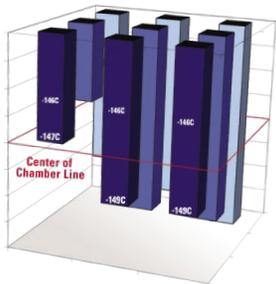
Comparison of temperature distribution in a LN$_2$ freezer (vapor phase) and Model MDF-C2156VANC-PA | **FZRC8-220** mechanically refrigerated cryogenic freezer.

Dimensions

Unit : inch | mm
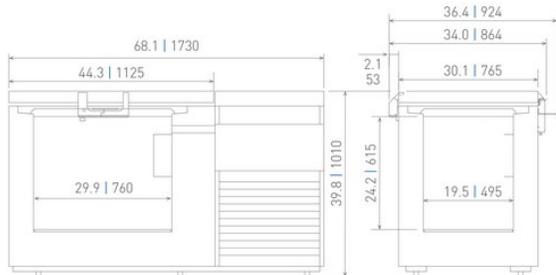
Model Number		MDF-C2156VANC-PA	FZRC8-220
External Dimensions (W × D × H) [1]	inches	mm	68.1 × 30.1 × 39.8	1730 × 765 × 1010
Internal Dimensions (W × D × H)	inches	mm	29.9 × 19.5 × 24.2	760 × 495 × 615
Volume	cu.ft.	liters	8.2	231
Net Weight	lbs	kg	716.5	325
Capacity (2" boxes)	qty	165
Capacity (3" boxes)	qty	105
Inventory Racks (2" boxes)	qty	15
Inventory Racks (3" boxes)	qty	15
Performance		
Warranty [2]		2 years plus 5 year compressor parts
Cooling Performance [3]	°C	-150
Temperature Setting Range [3]	°C	-125 to -152
Temperature Control Range [3]	°C	-125 to -150
Control		
Controller		Microprocessor
Display		LCD
Temperature Sensor		Pt-1000
Refrigeration		
Refrigeration System		Cascade with auto-cascade low stage
Compressors	W	(2) 1100, variable speed
Refrigerant		High-stage HFC Low-stage HFC Mixed
Insulation Thickness, Material	inches	mm	5.31	135, rigid polyurethane foam (PUF) + VIP Plus vacuum insulated panels
Construction		
Exterior Material		Painted steel
Interior Material		Aluminum
Outer Door	qty	1 (key lock with provision for optional pad lock)
Inner Doors	qty	2 (insulated, ABS, stainless steel frames, positive latches)
Access Ports	qty	1: near temperature sensor
Access Port Diameter	inches	mm	.5	12.7
Casters	qty	6 (3 leveling feet on front base)
Alarms		**(V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm)**
Power Failure		V-B-R
Temperature (High and Low)		V-B-R
Sensor Failure		V-B-R
Lid Open		V-B
Remote Alarm Contacts		DC 30V 2A (normally open, normally closed, common)
Electrical and Noise Level		
Power Supply		220V, 1Ø, NEMA 6-15P, requires NEMA 6-15R receptacle
Noise Level [4]	dB(A)	51
Temperature Recorder		
Circular Type	6", 7 day circular	MTRC954
Chart Paper	52 charts per box	C72101106REV (-210°C to +110°C)
Ink Pen	pack of 6	R252
Optional Communication System		
Wireless, Cloud-Based, Automatic Data Management		LabAlert® Monitoring System

[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] Air temperature measured at freezer center, ambient temperature +30°C, no load
[4] Nominal value, background noise 51 dB(A)

Specifications are subject to change without notice.
Performance data herein is based on independent testing at time of publication.

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