

MDF-C2156VANC-PA

-150°C Cryogenic Freezer

**Safe, Economical Air Phase Cryogenic Storage
Without Liquid Nitrogen**

8.2 cu. ft. | 232.2 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 autocascade refrigeration system delivers superior uniformity at cryogenic temperatures without stratification.

Reliable Sample Security

Powered by a robust autocascade 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 LN₂.

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.

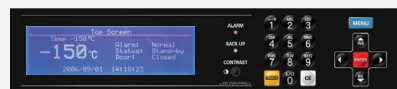
Safe, Economic Alternative

This innovative PHCbi brand -150°C cryogenic freezer eliminates hazardous operating conditions and frequent maintenance and cost requirements associated with LN₂ 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 LN₂ back-up system, included standard, adds an extra layer of protection. (Requires connection to external LN₂ 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.



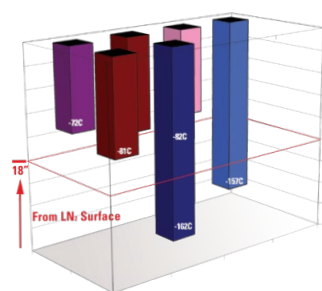
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Temperature

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 LN₂ vapor system is dependent on storage location.

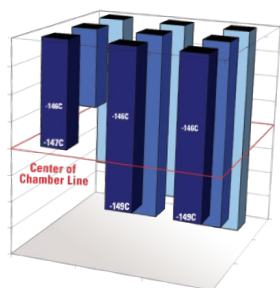
Liquid Nitrogen Freezer

Vapor Phase



Model MDF-C215VANC-PA

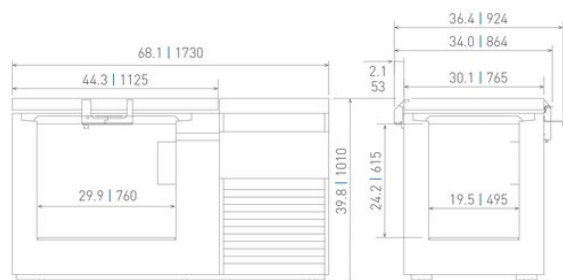
Mechanically Refrigerated Cryogenic Freezer



Comparison of temperature distribution in a LN₂ freezer (vapor phase) and Model MDF-C2156VANC-PA mechanically refrigerated cryogenic freezer.


Dimensions

Unit : inch | mm



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MDF-C2156VANC-PA

| Model Number | | MDF-C2156VANC-PA |
|-----------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| External Dimensions (W x D x H) ¹⁾ | inches mm | 68.1 x 30.1 x 39.8 1730 x 765 x 1010 |
| Internal Dimensions (W x D x H) | inches mm | 29.9 x 19.5 x 24.2 760 x 495 x 615 |
| Volume | cu.ft. liters | 8.2 231 |
| Net Weight | lbs kg | 701 318 |
| 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.

For latest specification information contact PHC Corporation of North America.
Performance data herein is based on independent testing at time of publication.