

## -150°C Cryogenic Freezer



MDF-C2156VANC-PA

### Temperature Uniformity for Long term storage

Uniform temperature of -150°C is maintained with VIP® PLUS insulation technology for stable, long term preservation of cells and tissue.

### Increased Storage Capacity

Cabinet construction dramatically reduces wall thickness, allowing for increased storage capacity in a smaller footprint.

### Economical Alternative to LN<sub>2</sub> Storage

Mechanical Freezer Preservation eliminates hazardous operating conditions as well as the continual maintenance and cost requirements of LN<sub>2</sub> storage.

Autocascade Mechanism



Cost Efficiency



Revolutionary Footprint

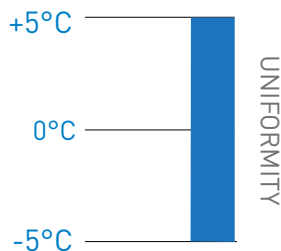


8.2 cu.ft.



### Uniformity

±5°C uniformity in a mechanically refrigerated design promotes **better top-to-bottom uniformity** than liquid nitrogen vapor-phase storage, without the concern of cross-contamination often associated with liquid nitrogen liquid phase storage.



Surpasses the customer preference of +/- 5°C



### Microprocessor Temperature Control

The temperature inside the freezer can be set and monitored easily by means of **precise microprocessor temperature control** with an LCD graphic display.

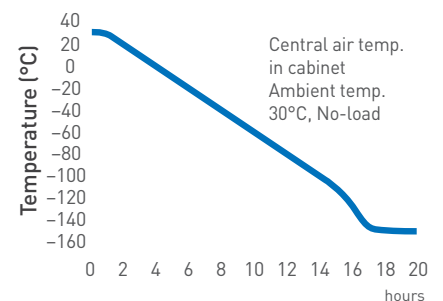


- Graphic display (LCD)
- Warning information
- Status display
- Setting



### Performance

Panasonic designed compressors are specifically for cryogenic temperature applications. This provides **superior performance leading to faster pull-down speed and unsurpassed uniformity** throughout the chamber.





# -150°C Cryogenic Freezer

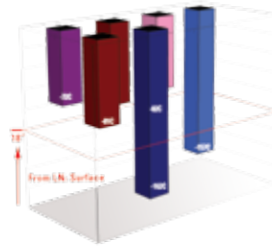
## An Ideal Cryogenic Environment with VIP® PLUS Design

Panasonic VIP® PLUS Cryogenic Series -150°C ultra-low temperature freezer offers superior performance providing unsurpassed uniformity in the chamber from top-to-bottom, side-to-side, front-to-back.

- Innovative Control and Monitoring:**  
 The temperature inside the freezer can be set and monitored easily by means of precise microprocessor temperature control with an LCD graphic display. The controller utilizes a platinum RTD sensor which is extremely precise and durable.
- Economical vs LN<sub>2</sub> Storage:**  
 Mechanical Freezer Preservation eliminates LN<sub>2</sub> consumption, mitigates safety concerns, and reduces cost of ownership. It also minimizes the chance of cross-contamination among multiple samples as they are stored within same supercooled environment.
- Security and Alarms:**  
 Status Alert monitors ambient and system conditions continuously and notifies of any abnormalities before a problem can occur. In case of power failure or an irregular rise in temperature, a rechargeable, high capacity battery-operated indicator lamp and alarm will be activated.

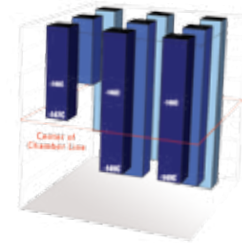
The graphs on the right show temperatures at different locations within the chamber. This data demonstrates that **100%** of the storage space maintains uniform storage temperatures safely below -130°C, while temperature in LN<sub>2</sub> vapor system is dependent on storage location.

Liquid Nitrogen freezer ( Vapor Phase )



Panasonic MDF-C215VANC-PA

mechanically refrigerated cryogenic freezer



Comparison of temperature distribution in a LN<sub>2</sub> freezer (vapor phase) and Panasonic's MDF-C2156VANC-PA mechanically refrigerated cryogenic freezer.

MODEL	MDF-C2156VANC-PA		
TEMPERATURE RANGE	-125°C to -150°C (1°C increments)	POWER REQUIREMENTS	208V-230V, 1 phase, 60Hz NEMA 6-15R (15 Amp) Receptacle
MAX COOLING PERFORMANCE	-150°C (ambient temp 30°C)	STORAGE	2"/51 mm boxes: 480 3"/76 mm boxes: 384
UNIFORMITY	±5°C at -150°C (empty chamber, ambient temp 24°C)	STORAGE (RACKS) FOR 2" FIBERBOARD BOXES	15 (10 boxes deep with locking rod)
VOLUME	8.2 cu.ft. (231 liters)	STORAGE (RACKS) FOR 3" FIBERBOARD BOXES	15 (7 boxes deep with locking rod)
EXTERIOR DIMENSIONS (W X F-B X H)	68.1" x 30.1" x 39.8" 1730 x 765 x 1010 mm	NET WEIGHT	Approx. 716.5 lbs. (325 kg.)
INTERIOR DIMENSIONS (W X F-B X H)	29.9" x 19.5" x 24.2" 760 x 495 x 615 mm	ALARMS	High/Low temperature, power failure, filter check, self diagnosis, lid check
ACCESS PORT	40mm diameter, 1 Location	REFRIGERANTS	CFC free refrigerant