Panasonic

Life Science

Ultra-Low and Cryogenic Solutions

VIP® Series | Twin Guard® Series
PRO Series | Cryogenic | Chest

us.panasonic-healthcare.com

Discovery powered by precision™

Discovery powered by precision™

Discovery starts with a dream. A dream to know who we are. A dream to better our lives... Behind every great discovery, there's the technology that made it all possible.

Introduction

Offer your samples the advantage of first class preservation technology with Panasonic ultra-low and cryogenic freezers. Our reputation is built on superior performance and reliability with uniform environment, even with higher ambient temperatures and frequent door openings. Panasonic ultra-low freezers meet the toughest quality standards for performance, ergonomics, and return of investment.

We are proud to provide your samples with the ultimate and the most reliable protection, helping cutting-edge research in critical fields like medicine, life sciences, pharmaceuticals, biotechnology, and general industrial use.

The Industry's Most Complete Ultra-Low Storage Solution

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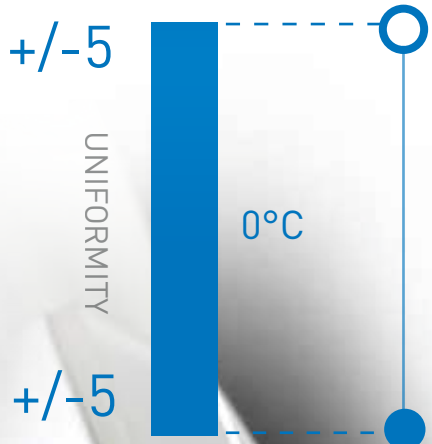
What to look for in an ULT freezer?

Find the right freezer for your needs.

Panasonic Ultra-low and Cryogenic Freezers

- Filterless Design
- Cascade Cooling System
- Power Failure Alarm
- Quiet, Reliable Compressors
- Automatic Alarm System
- Air Filter
- Remote Alarm
- Rechargeable Battery
- LCD Digital Display
- Service
- CPU and Touch Pad
- Energy Savings
- Insulated Inner Doors
- CFC-Free
- VIP® Vacuum Insulation Panel
- Optimum Footprint
- Dual Compressor System

Surpasses the customer preference of **+/- 5°C***



Uniformity & Reliability

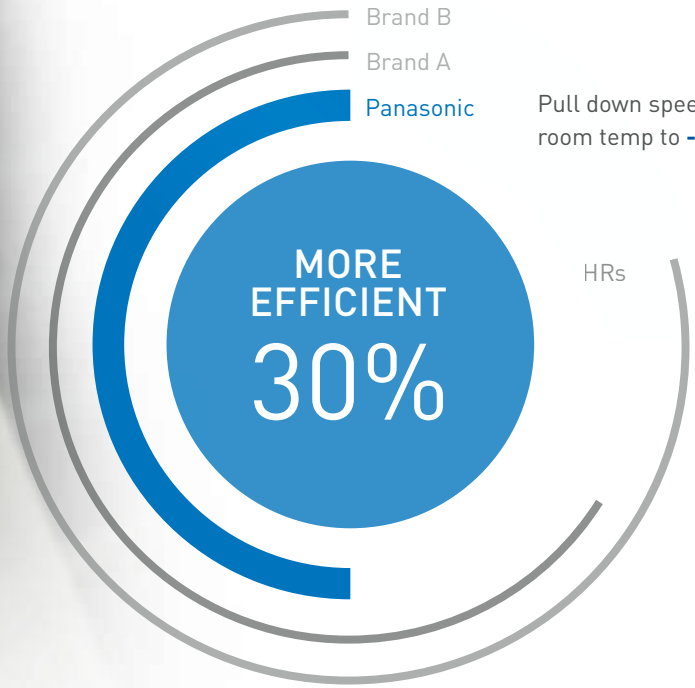
Panasonic products incorporate the latest applied theories and ideas, refrigeration compressors, electronic components, robotic manufacturing, and economies-of-scale that directly benefit the customer. Furthermore, Panasonic products are extensively tested to meet the toughest quality standards in the world for performance, ergonomics, and cost of ownership. Through the vigorous application of our unique Vertical Component Integration, Panasonic products offer tangible benefits - from performance and reliability to ergonomics and convenience -that no other manufacturer can provide.

* Based on internal validation data tested at -80°C setpoint,in an empty chamber with 23°C ambient temperature.

Performance

Panasonic Ultra-low freezers offer the following advantages:

- Rapid "pull down" – the time needed for your freezer to return to set point after door openings and maintain sample integrity.
- Best temperature uniformity that ensures all samples are well protected.



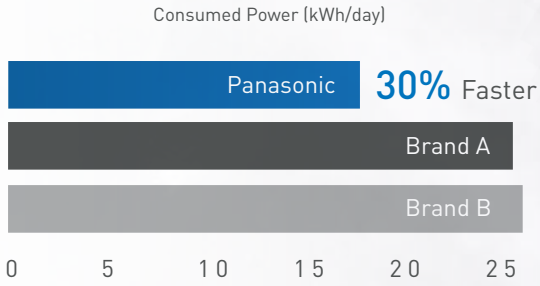
Pull down speed from room temp to **-80°C** .

What to look for in an ULT Freezer?

Panasonic products are extensively tested to meet the toughest quality standards in the world for performance, ergonomics, and cost of ownership.

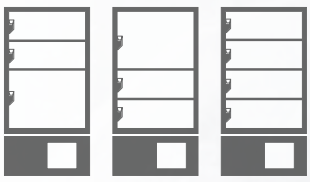
Energy Efficiency

Panasonic ultra-low freezers are insulated with high-performance CFC-free insulation, and new composite techniques to minimize energy consumption and lower operating costs. Beyond highly competitive first costs, Panasonic ultra-low freezers demonstrate the lowest operating costs per cu.ft. (liter) in the worldwide market.



Superior Footprint

Stainless steel shelf and insulated inner door combinations create choices of interior compartments that can be arranged for long-term, low access biologicals or short-term, frequently accessed material.



INNOVATION **TIMELINE**

1977
-86°C ULT freezer, MDF-230
-30°C medical freezer, MDF-390

1980
-86°C upright ULT Freezer, MDF-380
Prefab refrigerator, MCU-1000
Cooling unit, MCU-5020

1983
Compact -86°C ULT freezer, MDF-190

1989
-86°C double-door upright ULT freezer, MDF-U581 Establishment of bio-soft laboratory, Tokyo plant

1997
-135°C ULT freezer, MDF-2135

2003
-86°C VIP® freezers, MDF-U32V/U54VC

2010
Introduction of Twin Guard® Series
-86°C ULT Freezer, MDF-U500VX

2011
PRO Series
Twin Guard® Series MDF-700VXC

Find the right freezer

Twin Guard® Series

-86°C Ultra-low Freezers

MDF-U700VXC-PA, MDF-U500VXC-PA

Two independent systems offering double security for your samples.

VIP® Series

-86°C Ultra-low Freezers

MDF-U76VA-PA, MDF-U76VC-PA, MDF-56VC-PA
MDF-U53VA-PA, MDF-U33V-PA

Most reliable freezer with best performance and maximum energy savings.

for your needs.

PRO Series

-86°C Ultra-low Freezers

MDF-U5486SC-PA, MDF-U7486SC-PA

Optimum performance under optimum budget.

Chest Freezers

-86°C /-80°C Ultra-low Freezers

MDF-594C-PA, MDF-794C-PA
MDF-C8V1-PA

Energy efficiency and high performance cooling with space saving design.

Cryogenic Freezer

-150°C Ultra-low Freezers

MDF-C2156VANC-PA

Reliable mechanical refrigeration with maximum storage capacity.

Twin Guard® Series (-86ºC)

MODEL	TEMPERATURE RANGE	INTERIOR VOLUME	AREA FOOTPRINT (NOMINAL)	INSULATION TYPE	STORAGE (2"/ 51 MM BOXES)	STORAGE (3"/76 MM BOXES)	STORAGE (2ML VIALS IN BOXES)	ELECTRICAL, 60HZ
MDF-U500VXC-PA	-50ºC to -86ºC	18.3 cu.ft. 519 L	8.37 sq.ft. 0.67 m^2	VIP® PLUS	352	224	35,200	208/230V NEMA 6-15
MDF-U700VXC-PA	-50ºC to -86ºC	25.7 cu.ft. 728 L	9.51 sq.ft. 0.88 m^2	VIP® PLUS	576	384	57,600	208/230V NEMA 6-15

VIP® Series (-86ºC)

MODEL	INTERIOR VOLUME	EXTERIOR DIMENSIONS (W X F-B X H)	AREA FOOTPRINT, NOMINAL	INSULATION TYPE	FIBERBOARD BOXES, 2" HIGH (2ML) IN PANASONIC RACKS	SAMPLE VIALS, 2ML (2" BOX), 100-CELL DIVIDERS	ELECTRICAL, 60HZ
MDF-U33V-PA	11.8 cu.ft. 333 L	26.4" x 34.1" x 73.2" 670 x 870 x 1860 mm	6.25 sq.ft. 0.58 m^2	VIP®	216	21,600	115V, AC, 15 amp
MDF-U53VA-PA	18.3 cu.ft. 519 L	30.3" x 34.4" x 78.3" 770 x 870 x 1990 mm	7.24 sq.ft. 0.67 m^2	VIP®	352	35,200	115V, AC, 20 amp
MDF-U56VC-PA	18.6 cu.ft. 526 L	30.3" x 34.4" x 78.3" 770 x 870 x 1990 mm	7.24 sq.ft. 0.67 m^2	VIP® PLUS	384	38,400	208/230V, AC, 15 amp
MDF-U76VC-PA	25.7 cu.ft. 728 L	39.8" x 34.4" x 78.3" 1010 x 870 x 1990 mm	9.51 sq.ft. 0.88 m^2	VIP® PLUS	576	57,600	208/230V, AC, 15 amp
MDF-U76VA-PA	25.7 cu.ft. 728 L	39.8" x 34.4" x 78.3" 1010 x 870 x 1990 mm	9.51 sq.ft. 0.88 m^2	VIP® PLUS	576	57,600	115V, AC, 20 amp

PRO Series (-86ºC)

MODEL	VOLUME (CU.FT.)	EXTERIOR DIMENSIONS (W X F-B X H)	INSULATION TYPE	STORAGE (2"/ 51 MM BOXES)	STORAGE (3"/76 MM BOXES)	STORAGE (2ML VIALS IN BOXES)	VOLTAGE, POWER CONNECTION
MDF-U5486SC-PA	17.1 483 L	35.0" x 34.4" x 78.3" 890 x 840 x 1990 mm	Conventional	320	192	32,000	208/230V NEMA 6-15
MDF-U7486SC-PA	23.5 668 L	44.5" x 34.4" x 78.3" 1130 x 870 x 1990 mm	Conventional	480	288	48,660	208/230V NEMA 6-15

Cryogenic Freezer (-150ºC)

MODEL	VOLUME (CU.FT.)	EXTERIOR DIMENSIONS (W X F-B X H)	INSULATION TYPE	STORAGE (2"/ 51 MM BOXES)	STORAGE (3"/76 MM BOXES)	STORAGE (2ML VIALS IN BOXES)	VOLTAGE, POWER CONNECTION
MDF-C2156VANC-PA	8.2 231 L	68.1" x 30.1" x 39.8" 1730 x 765 x 1010 mm	VIP® PLUS	150	105	15,000	208/230V NEMA 6-15

Chest Freezers (-86ºC / -80ºC)

MODEL	VOLUME (CU.FT.)	EXTERIOR DIMENSIONS (W X F-B X H)	INSULATION TYPE	TEMPERATURE (ºC)	STORAGE (2"/51 MM BOXES)	STORAGE (3"/76 MM BOXES)	STORAGE (2ML VIALS IN BOXES)	VOLTAGE, POWER CONNECTION
MDF-C8V1-PA	3.0 84 L	21.6" x 27.0" x 37.2" 550 x 685 x 945 mm	VIP® PLUS	-80ºC	42	30	4,200	115V NEMA 5-15
MDF-594C-PA	17.2 487 L	79.1" x 30.3" x 42.1" 2010 x 770 x 1070 mm	Conventional	-86ºC	351	243	35,100	208/230V NEMA 6-15
MDF-794C-PA	24.8 701 L	101.2" x 30.3" x 42.1" 2570 x 770 x 1070 mm	Conventional	-86ºC	507	351	50,700	208/230V NEMA 6-15

TwinGuard® Series

Security Now Comes with Two.

The industry's safest ultra-low storage solution for high value biological samples.

Models: MDF-700VXC-PA, MDF-500VXC-PA

What makes the Twin Guard® a product you can trust?

Innovative Design

Two independent systems allow the unit to run continuously at -65°C in the unlikely event of a compressor failure.

Patented VIP® PLUS Vacuum Panel

Uniform temperatures with energy efficient and space efficient refrigeration.

Ergonomic Design

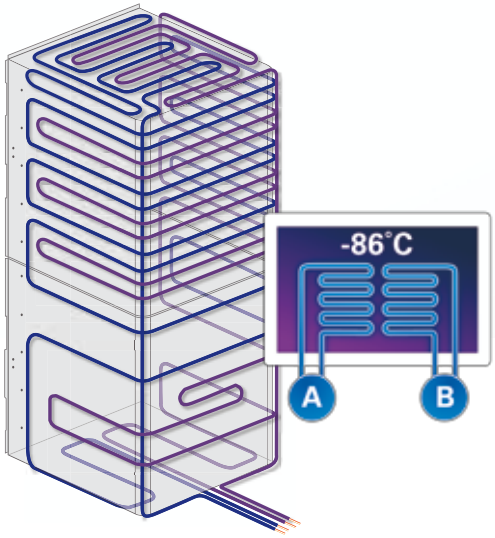
One-handed outer and inner door latches and compressors to minimize sound.

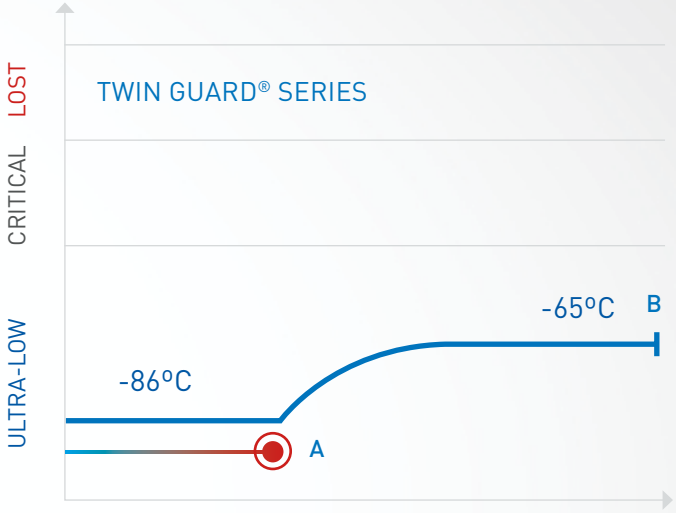
The Most Reliable Ultra-Low Freezers for Long-Term Storage

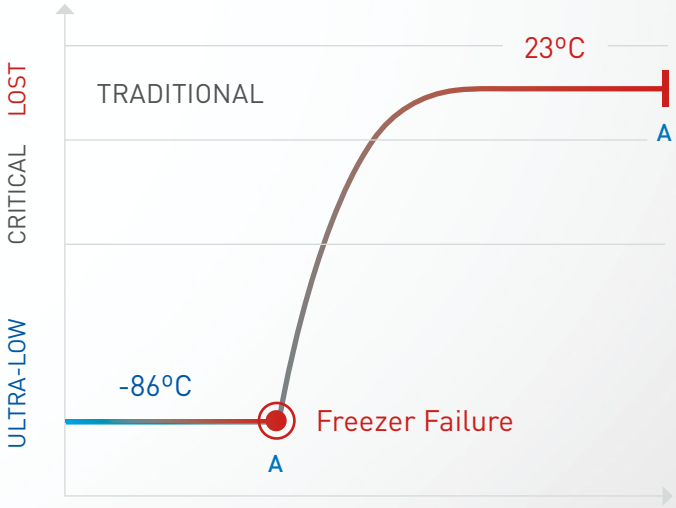
The Panasonic Twin Guard® Series satisfies the industry demand for safe, long-term storage for the most high-valued materials. Two independent refrigeration systems, combined with optional liquid nitrogen or liquid CO_2 back-up systems, offer a circle of protection unmatched in the marketplace. Developed for use with conventional inventory racks and boxes, the Twin Guard® Series is ideal for storage of sensitive stem cells, embryos, cell lines, and other rare specimens.

Ultimate Protection

Give your samples the ultimate protection of patented Twin Guard® technology. Two independent systems can individually sustain ultra-low temperatures in the event of a failure, so you can rest easy knowing your valuable work is in good hands.

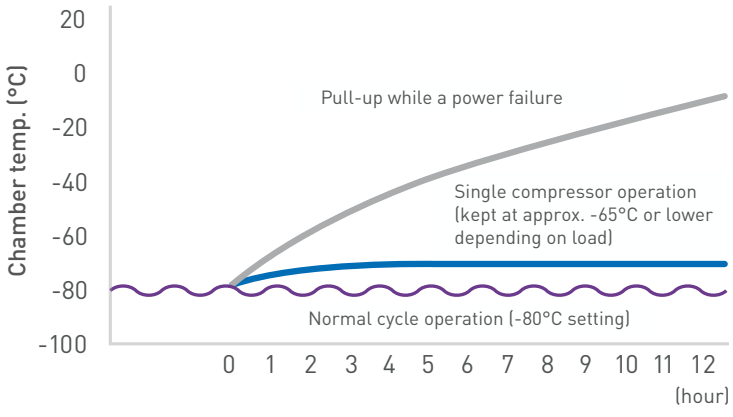


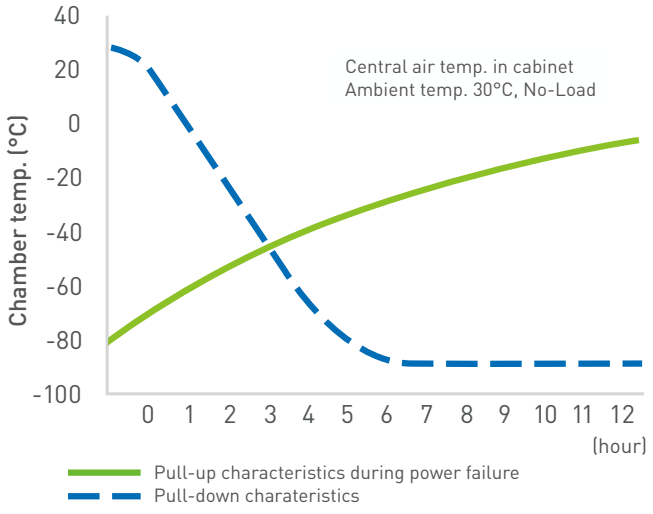




The efficient ultra-low cooling is achieved through two independent evaporator circuits surrounding the interior chamber.

Performance & Recovery





What is Twin Guard® Technology?

The Panasonic MDF-U500VXC-PA and MDF-U700VXC-PA Twin Guard® Series ultra-low freezers are designed for -86°C storage of high-value biological samples. Ideal for critical material storage in repositories, highly secure BSL 3/4 labs, GMP facilities, hospitals, clinics, and medical research facilities. The Twin Guard® Series introduces the concept of two independent auto-cascade refrigeration systems within a single cabinet.

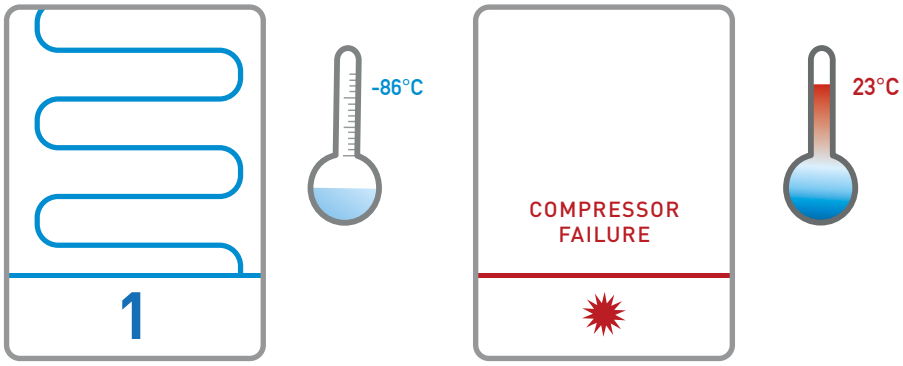
A vacuum relief valve is mounted in the left wall.

The Panasonic ergonomic design features a high-security Easy-In / Easy-Out door latch designed for simplicity and safety. Also allows for one handed operation.

1. Panasonic patented VIP® PLUS vacuum insulation panel cabinet construction for high insulating value and increased interior volume in the same footprint.
2. Easy-In/Easy-Out door latch for smooth, one-handed operation, positive seal against gasket.
3. Integrated, microprocessor-based control system and LCD display information center includes comprehensive set-point, alarm, monitoring, diagnostic and communications functions.
4. Insulated, sealed, and gasketed inner doors seal inside to offer additional protection, improve uniformity.
5. New air-cooled super condenser energy transfer technology maintains optimum condenser air flow and eliminates the need for an air filter or reducing the requirement for periodic maintenance.
6. High impact, recessed casters and leveling feet simplify installation.
7. Cool Safe compressors are specifically designed for one-compressor, autocascade applications.
8. Twin Guard® Series redundant refrigeration -86° Dual Cool circuits offer two systems in one, each providing back-up for the other, or working together for fast recovery or energy savings
9. Multiple access ports permit insertion of independent probes, instrumentation or liquid nitrogen or liquid CO_2 back-up injectors.
10. HFC-refrigerants are highly efficient, environmentally safe, non-ozone depleting.
11. A vacuum relief valve is mounted in the left wall to ensure easy access to chamber following door closure.
12. Standard remote alarm contacts and optional communication port available.

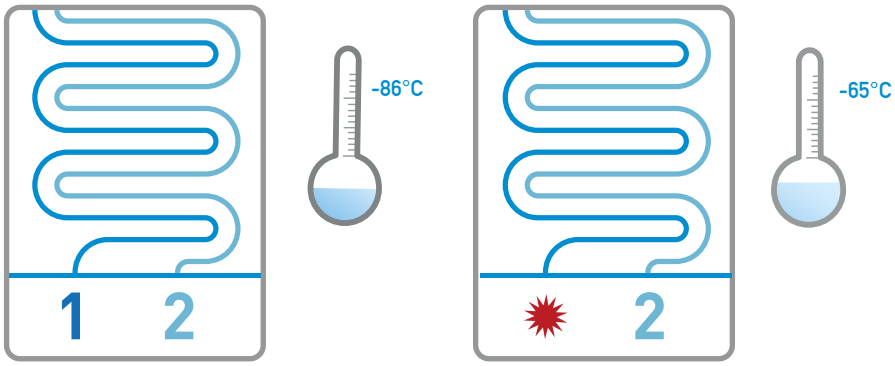
Traditional Freezer

Freezer relies on a single compressor system, causing a complete shut-down when failure occurs. Temperature quickly rises to room temperature.



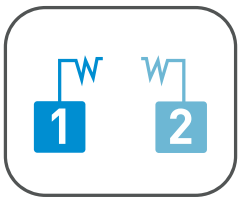
Panasonic **Twin Guard®** Freezer

Second independent compressor system kicks in to maintain ultra-low temperatures in the event of a failure. **Temperature remains at -65°C.**



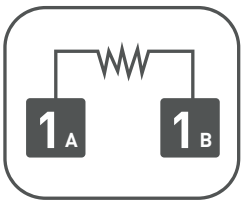
How it works:
An ultra-low compressor

Simply put, a compressor is what runs your freezer. It's the heart of the whole system, keeping your freezer at ultra-low temperatures. The compressor is tied to refrigeration coils that run throughout the unit to maintain those even, sub-zero temperatures.



Panasonic

With Panasonic's patented Twin Guard technology, 2 compressors are completely separated from one another, with no reliance on the other to operate. So if one of them fails, the other is unaffected and your freezer will keep operating at ultra-low temperatures.



Traditional

Compressors are traditionally made up of two parts: a high stage and low stage. These parts rely on one another to operate, so if there is a problem with either part, the entire system shuts down.

Optimal Capacity & Footprint

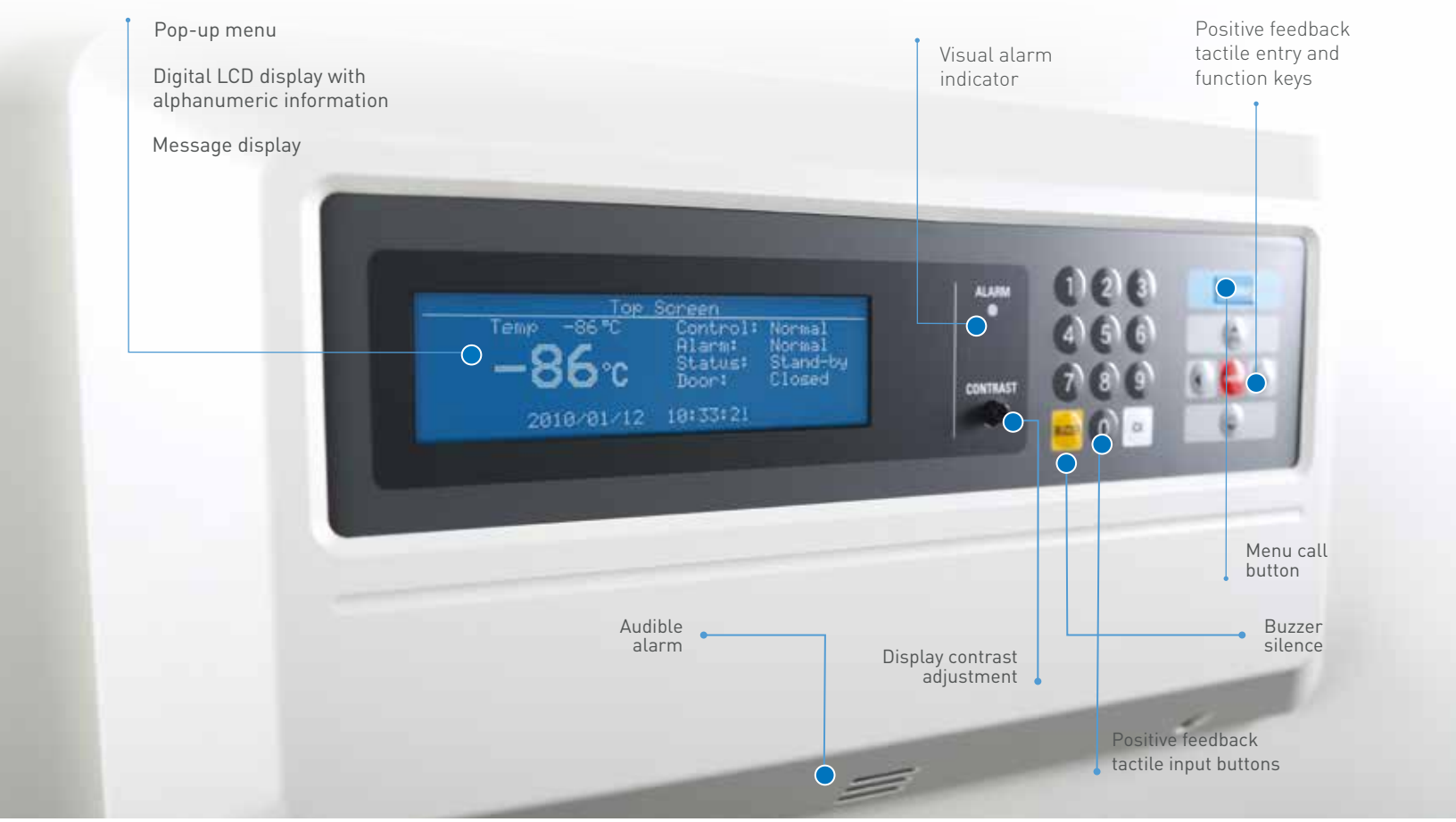
Panasonic Twin Guard® series freezers offer a large storage capacity of **576 2" boxes**, while maintaining a small footprint with reduced energy usage. This leads to a lower energy requirement per box stored, saving you money in ongoing operational costs.

MODEL NUMBER	TEMPERATURE RANGE	INTERIOR VOLUME	AREA FOOTPRINT (NOMINAL)	STORAGE (2"/51 MM BOXES)	STORAGE (3"/76 MM BOXES)	STORAGE (2ML VIALS IN BOXES)	ELECTRICAL, 60HZ
MDF-U500VXC-PA	-50°C to -86°C	18.3 cu.ft. 519 L	8.37 sq.ft. 0.67 m²	352	224	35,200	208/230V NEMA 6-15
MDF-U700VXC-PA	-50°C to -86°C	25.7 cu.ft. 728 L	9.51 sq.ft. 0.88 m²	576	384	57,600	208/230V NEMA 6-15

Technical Specifications

MODEL NUMBER	MDF-U500VXC-PA	MDF-U700VXC-PA
TEMPERATURE SET-POINT RANGE	-50°C to -86°C	
DESIGN COOLING PERFORMANCE -86 DUAL°COOL (BOTH COMPRESSORS)	-86°C (ambient temperature 30°C)	
SINGLE SYSTEM COOLING PERFORMANCE (INDEFINITE)	-65°C (ambient temperature 30°C)	
CABINET DESIGN AND CONSTRUCTION		
CABINET INSULATION	Patented VIP® PLUS composite wall	
EXTERIOR DIMENSIONS (W X F-B X H)	35.5" x 40" x 78.3" 770 x 870 x 1990 mm	42.5" x 40" x 79.1" 1010 x 870 x 2010 mm
INTERIOR DIMENSIONS (W X F-B X H)	25.6" x 23.6" x 54.3" 630 x 600 x 1380 mm	34.3" x 23.6" x 55.1" 870 x 600 x 1400 mm
VOLUME	18.3 cu.ft. 519 liters	25.7 cu.ft. 728 liters
SHELVES	3, adjustable, stainless steel (4 compartments)	
ACCESS PORT	Diameter = 0.5"/17mm; 3 locations	
VACUUM RELEASE PORT	Standard, Manual	
REFRIGERATION SYSTEM		
REFRIGERATION TECHNIQUE	Panasonic -86 Dual°Cool independent, redundant cooling systems with automatic switchover	
COMPRESSORS	Per system: Single, hermetically-sealed 1100W Panasonic Cool Safe compressor, air-cooled	
REFRIGERANT	Environmentally safe HFC refrigerant	
AIR EXCHANGE	Dual condenser fans with particulate trap; no filters are required	
CYCLE OPTIONS	Standard or energy-saving EcoMode operation	
CONTROLS, ALARM, MONITORING		
CONTROLLER	Panasonic microprocessor-based, door-mounted control with graphical LCD information center	
DATA MANAGEMENT	Internal data log with log file memory	
COMMUNICATIONS	Data can be transmitted via RS485, optional 4-20 mA	
ALARMS	High/Low temperature, door ajar, power failure, remote alarm contact, part replacement notification, fan motor lock, individual cooling circuit check	
REMOTE ALARM CONTACTS	Standard; normally open or normally closed, dry contacts	
ELECTRICAL	208V-230V, AC, 60Hz, 1 phase, NEMA 6-15, 15 amp separate breaker recommended	

Security, Control & Monitoring



All performance attributes are displayed on a large, visually intuitive alphanumeric display.

Internal temperature log files are expressed in graphical form over time.

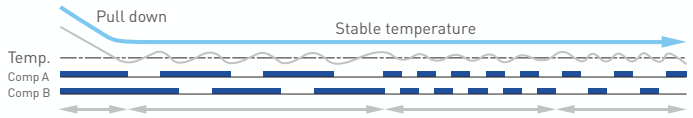
Out-of-compliance events are announced by visual and audible warnings. Error codes quickly identify problem sources and permit fast diagnosis and remediation.

ALARM & SAFETY FEATURES	EVENTS	VISUAL	AUDIBLE	SIGNAL TO ALARM CONTACT
STATUS ALERT	Inefficient system operation, abnormal ambient, low voltage or heavy loading.	Notification of error on graphical display	None	None
HIGH TEMPERATURE (UP TO +40°C)*	Interior chamber cools beyond high temp set-point		Intermittent tone. Time delay of 15 minutes after reaching alarm set-point avoids false alarms. Intermittent tone.	Yes
LOW TEMPERATURE (UP TO -40°C)*	Interior chamber warms beyond low temp set-point			Yes
POWER FAILURE	Loss of power		Intermittent Tone	Yes
CONTROL TEMPERATURE SENSOR FAILURE	Sensor probe disconnect short circuit or failure		Solid Tone	Yes
DOOR ALARM	Door open	Notification of error on graphical display	Solid tone sounds after 2 minutes	Yes

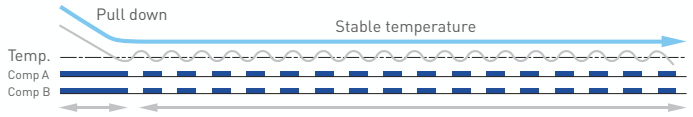
*Extended range is important for GxP applications to reduce potential incident event reporting. The integrated microprocessor control aggregates information from the entire system and compares to normal or set-point values. Out-of-compliance events are announced by visual and audible warnings, and remote alarm when connected to an external system.

Eco Mode vs. Normal Mode

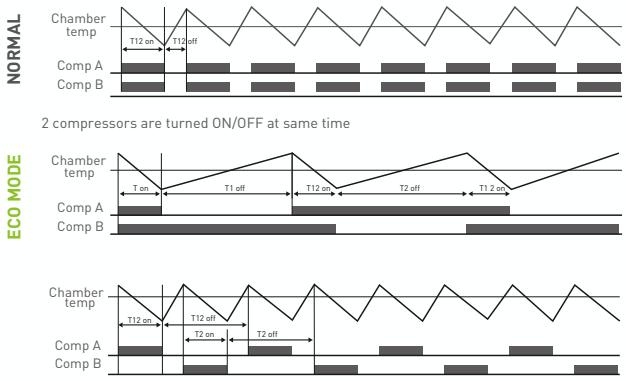
ECO MODE operation image



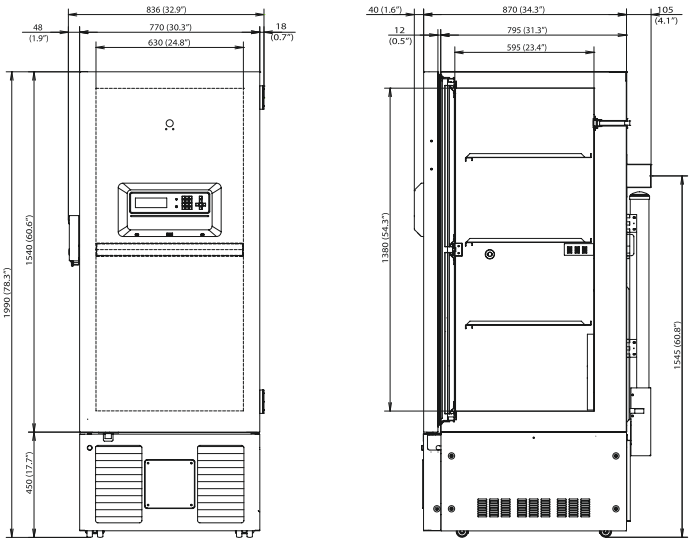
NORMAL mode operation image

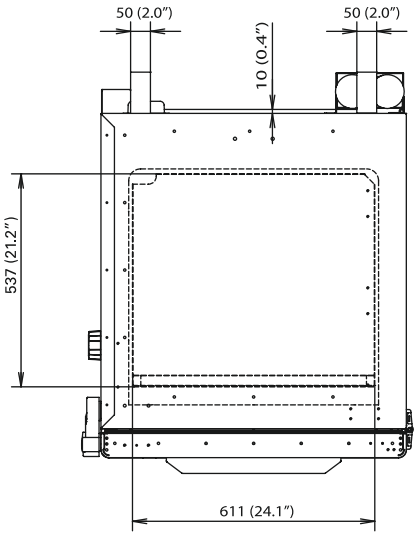


This chart shows the repeatable cycling wave form of normal mode vs. eco mode. Normal mode is for strict GMP applications.

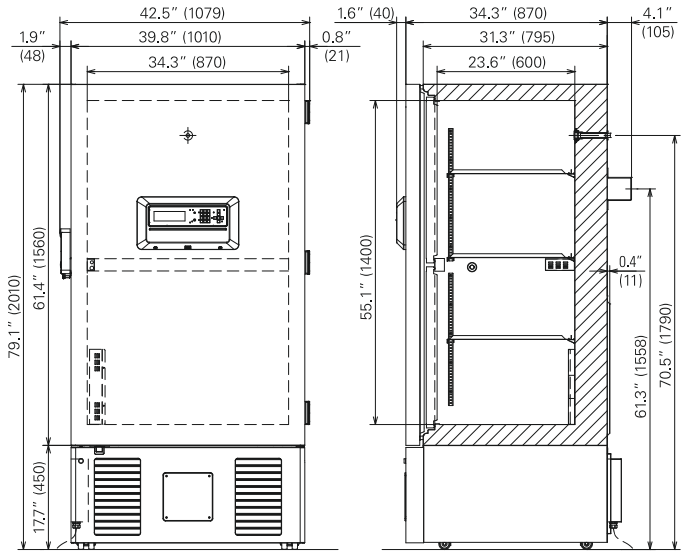


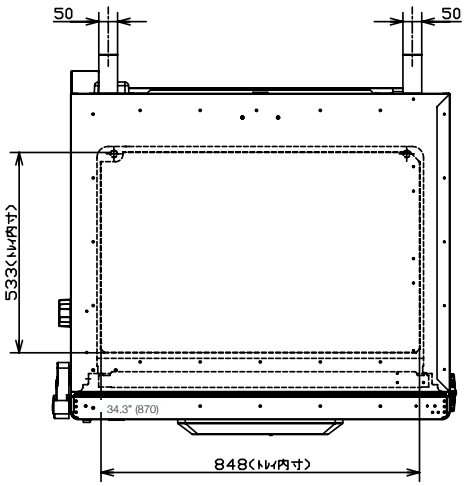
Dimensional Drawings





MDF-U500VXC-PA
(mm, in)





MDF-U700VXC-PA
(in,mm)

VIP® PLUS Series

Leading Performance with Greater Energy Savings.

The industry's safest ultra-low storage solution for high value biologicals.

Models: MDF-U76VC-PA, MDF-U76VA-PA
MDF-U56VC-PA, MDF-56VA-PA
MDF-U33VC-PA, MDF-U33VA-PA

Think Green: Environmentally friendly refrigerants, RoHS compliant and low-noise operation.

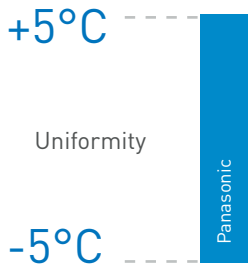
What makes VIP® Freezers so Reliable?

Panasonic VIP® ultra-low freezers represent the industry's most complete combination of refrigeration, control, alarm, monitoring, and accessibility for product safety at -86°C. Ideal for material storage in repositories, hospitals, clinics, and medical research facilities, the VIP® Series freezers are designed to reduce energy consumption and offer optimal performance.

Uniformity you can trust

Combination of patented VIP® plus vacuum insulation panel with Panasonic designed compressors specific to ultra-low applications, result in unmatched uniformity, that surpasses the strictest protocols, no matter where your samples are stored within the unit.

Surpasses the customer preference of **+/- 5°C***



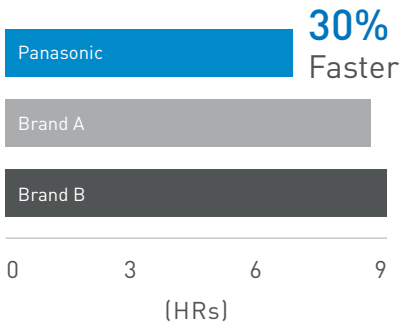
* Based on internal validation data tested at -80°C setpoint, in an empty chamber with 23°C ambient temperature.

Performance

Panasonic compressors employs a unique orientation of components that increases compressor longevity and refrigeration capacity while reducing operating pressure and discharge temperatures – a key component that yields better reliability.

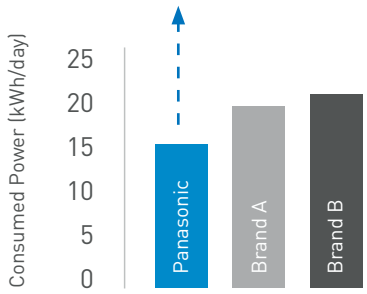
Validated Temperature Recovery

Increased reserve cooling capacity improves temperature recovery after door openings.



Energy Savings

Up to **31%** more efficient



Energy Efficient Cascade Cooling

Panasonic cascade refrigeration system and the new improvements in the heat exchanger design drastically increase the efficiency of the entire system. The end result is less energy consumption, while improving the overall efficiency and reliability of the freezer.

* The data may vary depending on the use, circumstances and optional accessories. Validation documents can be provided for each serial number with an additional fee.

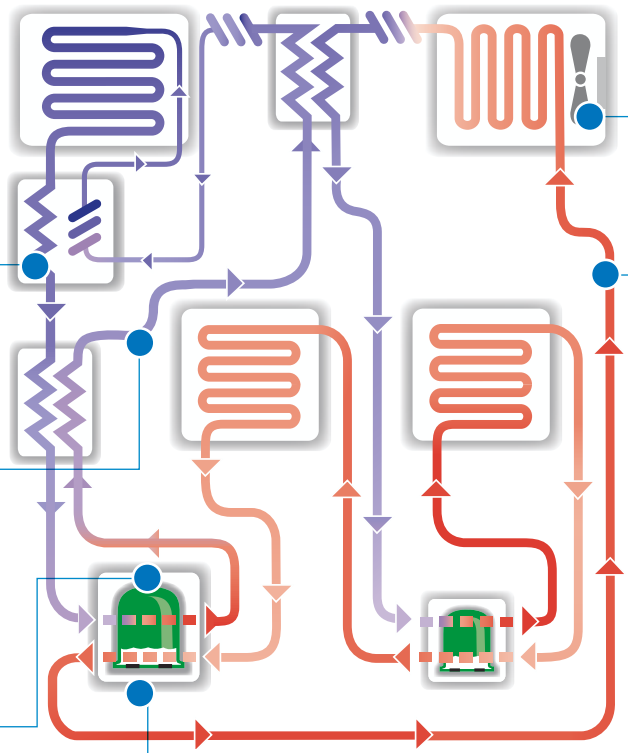
VIP® Series -86°C Freezer
Energy Efficient Cascade Cooling System

NEW! High Efficiency Heat Exchanger
Low stage capillary tube heat exchanger provides optimum heat transfer between high and low temperature points in the low stage leading to greater energy efficiency.

Low Stage Refrigerant
Commonly available worldwide, R508. Industry Standard.

Low Stage Compressor
Compresses and pumps refrigerant through the low stage circuit.

Oil Heat Exchanger
Panasonic exclusive high stage refrigerant passes through both compressor oil sumps to cool lubricating oil resulting in high-stage refrigerant being used to increase the durability of the compressors.



Main Condenser and Motor/Fan Assembly
Panasonic's exclusive triple pass forced air condenser increases overall system efficiency by providing maximum surface area for heat rejection.

High Stage Refrigerant
Commonly available worldwide. Selected for optimum cooling performance in compliance with international environmental protection laws.

Instrumentation (Not Shown)
Temperature and pressure sensors throughout the high and low stage circuits transmit information to the Panasonic 'Status Alert' central controller for operation, monitoring, interpretation and component protection.

VIP® Features

1. Easy-In/Easy-Out door latch for smooth, one-handed operation, positive seal against gasket. Padlock provision standard.
2. Integrated, microprocessor-based control system and LED display includes comprehensive set-point, alarm, monitoring, diagnostic and communications functions.
3. Insulated and gasketed inner doors seal inside to offer additional protection and improve uniformity. Inner door latches are standard. Doors can be easily removed for defrosting.
4. Front access to washable, electrostatic condenser filter for routine condenser air filter cleaning.
5. High impact, recessed casters and leveling feet simplify installation.
6. New generation Panasonic designed Cool Safe compressors are specifically designed for low temperature applications.
7. Multiple access ports permit insertion of independent probes, instrumentation or liquid N_2 or liquid CO_2 back-up injectors.
8. Commercially available HFC-refrigerants are highly efficient, environmentally safe and non-ozone depleting.
9. Remote alarm contacts and optional communication port available; see Accessories.
10. Vacuum relief valve (Available on the MDF-U56VC-PA, MDF-U76VC-PA, and MDF-U76VA-PA)

The Panasonic ergonomic design features a high-security Easy-In/Easy-Out door latch designed for simplicity and safety. Also allows for one handed operation.

Optional Accessories

Inventory Rack Systems

Panasonic freezers are available with a variety of inventory racks to meet specific applications. Freezers can be ordered with full-load inventory systems by selecting one catalog number.

Circular Recorder, Strip Chart Recorder and Recorder Mounting Bracket

LabAlert™ Monitoring System

Complete your preservation requirements with Panasonic LabAlert™ Monitoring solution. LabAlert™ makes the monitoring of your freezer easier than ever. You can keep a constant check on the temperature, pressure, door status, and refrigerant leaks that your samples are exposed to– anytime, anywhere. Easy set up, affordable pricing, infinite scalability, and intuitive user interface.

The Digital Temperature Recorder

The recorder mounts on the cabinet door and is programmable to capture and store non-corrutible data points for downloading to an independent data management system to meet criteria outlined in U.S. FDA 21CFR Part II directives. An independent probe is placed in the interior chamber.

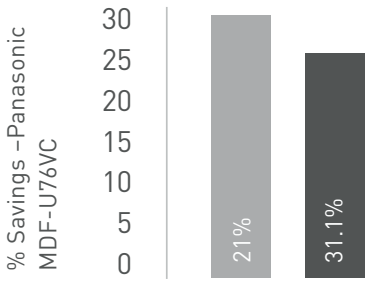
CO_2 Backup System and LN_2 Backup System

Operating Analysis

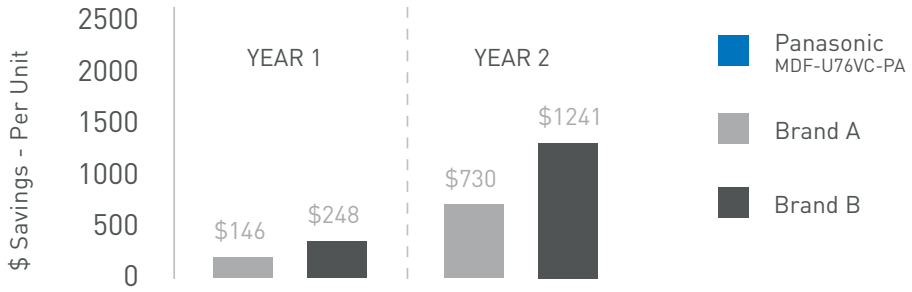
The superior energy efficiency of Panasonic VIP® Series Ultra-Low Freezers leads to significant annual cost savings. Lower kW usage combined with lower heat rejection leads to savings on freezer operation costs plus associated HVAC costs to remove the heat generated by the freezer. With an industry-leading capacity of up to 576 2" boxes, the energy-saving advantages of this efficient Panasonic system extend to lower per-unit storage costs regardless of the preferred inventory configuration.

The concept of High Density Storage is enabled by advances in Panasonic Cool Safe compressor design. The cost per 2" box of interior storage space is significantly lower in a Panasonic ultra-low freezer, generating immediate return on investment based on first costs, operating costs, and maintenance costs over time.

Operating Cost Savings Percentage

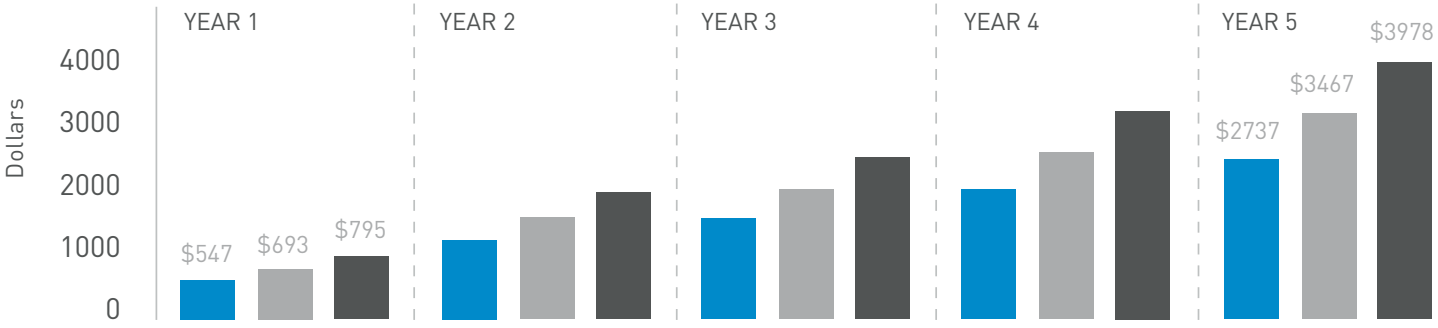


Operating Cost Savings per Unit - 1/5/10 Years
Panasonic MDF-U76VC vs. Brand A and B



Total Operating Cost of 1 Unit

Up to **31%** less cost annually



Optional Accessories

WATER COOLED CONDENSER	DESCRIPTION
WATER PRESSURE & TEMPERATURE	Maximum Water Pressure: 150psig, Minimum Water Pressure Differential: 15psig, Maximum Water Temperature: 30°C
CONNECTIONS	Typically ½" compression fittings on inlet and outlet but can be customized for customer needs
REQUIRED WATER FLOW RATE (MAXIMUM)	Tower Water: 11.4 liters per minute
INSTALLATION	Qualified technician required at time of installation to balance water flow requirements. Efficiencies can be easily obtained regarding water usage by balancing the water flow to optimum usage and freezer efficiency dependent upon the specific site installation

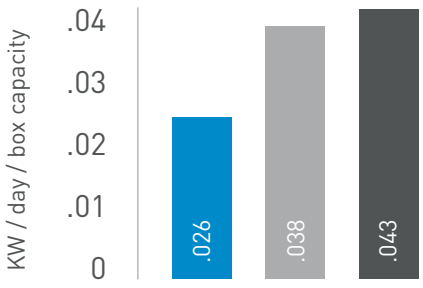
ACCESSORY	DESCRIPTION	
HALF INNER DOOR	Set of two; Field Installed; replaces half inner door; for a four-door configuration order two sets	MDF-5ID-PW (MDF-U53VA), MDF-5ID1-PW (MDF-U-56VC), MDF-7ID1-PW (MDF-U76VC / MDF-U76VA)
DIGITAL TEMPERATURE RECORDER	Auxiliary Data Logger	HAMSTERDT2
LIQUID CO_2 BACK-UP SYSTEM	Auxiliary back-up in event of power failure	CVK-UB2(I)-PW
LIQUID N_2 BACK-UP SYSTEM	Auxiliary back-up in event of power failure	CVK-UBN2-PW
CHART RECORDER	Circular Chart Temperature Recorder, 7 Day	MTR-C954
CHART PAPER	6" Diameter, 7 Day Chart	C7100386REV
REPLACEMENT PEN, RED / BLUE	Felt tip pens, 6 per pack	R252 / R253
DIGITAL TOUCH PANEL RECORDER	Programmable digital temperature recorder	FT560SN
DATA LOGGING SOFTWARE	For use with touch panel recorder	A016
21 CFR PART 11 COMPLIANT SOFTWARE	For use with touch panel recorder	A026

Energy Performance

More Efficient

Panasonic VIP® freezers provide reduced operational cost for highly efficient sample storage.

Power Consumption By Capacity
(KW/day/box capacity)



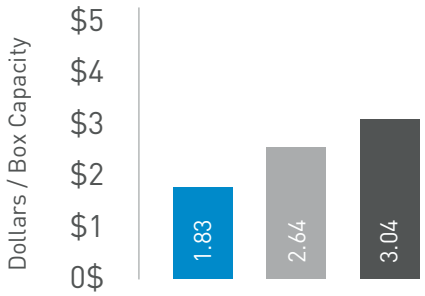
Up to **39%** more efficient

Panasonic freezers provide reduced operational cost for highly efficient sample storage.*

Operating Cost

Panasonic freezers emit less heat into the laboratory, minimizing air conditioning costs.

Total annual operating cost for operation and cooling by capacity



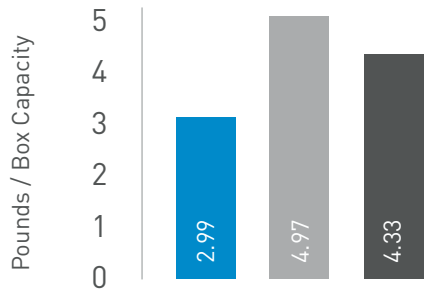
Up to **40%** less cost

Cost is an average for operating freezer including cost to remove heat from the room generated by the freezer.

Less Emission

VIP® freezers help the environment by reducing carbon footprint.

Annual CO_2 Emissions by Box Capacity

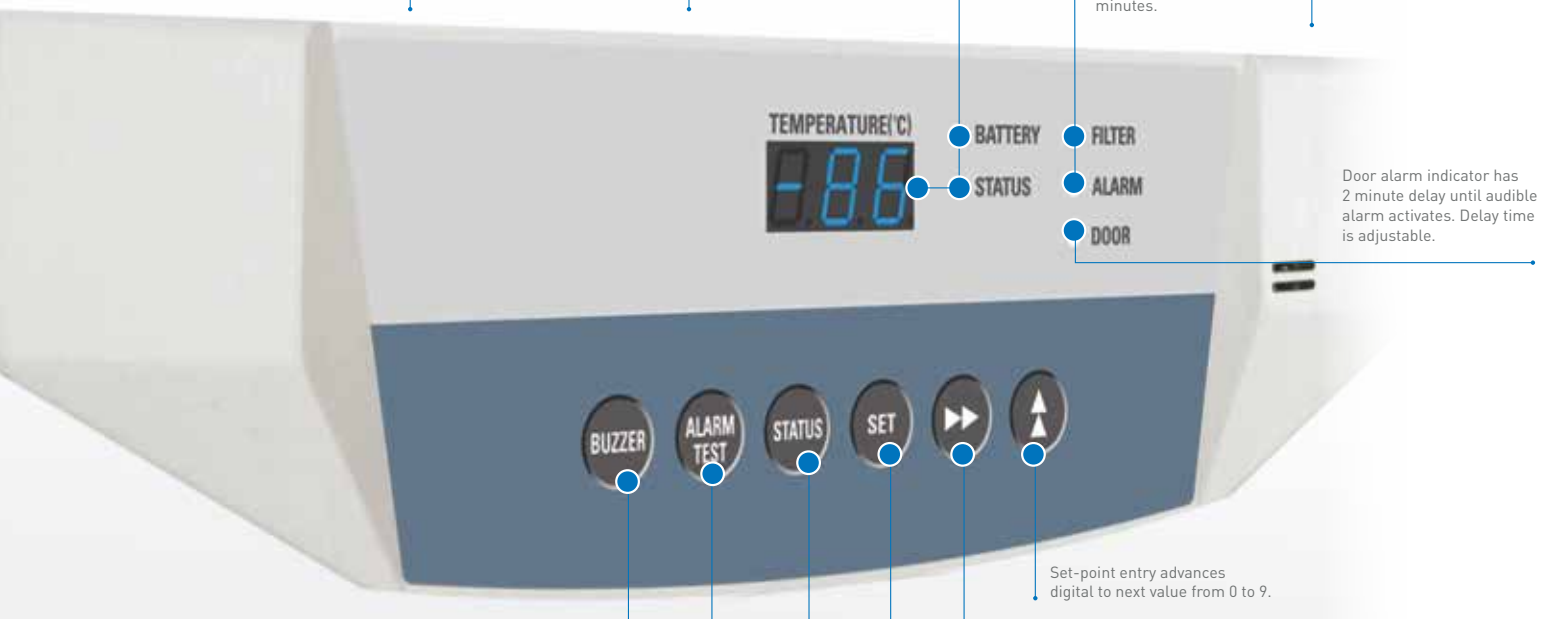


Up to **40%** lower emissions

Panasonic Brand A Brand B

Sample Security, Alarms & Monitoring

The Panasonic microprocessor control system is secure, easy-to-use, and comprehensive. Set-point, alarm parameters, and self-diagnostic functions are accessed through a tamper-resistant keypad protocol. Control inputs are managed with convenient push buttons on a unitized, sealed control overlay. The panel is door-mounted and angled for easy access.



Panasonic exclusive Ni-MH battery powers control memory and alarm functions during power failure.

Status alert function uses predictive intelligence to determine if freezer is operating within specifications under existing environmental conditions.

Digital display defaults to actual chamber temperature. Display mode changes when set-point, alarm parameters, programming, and diagnostic functions are performed.

Alarm indicator lamp glows when freezer is in alarm condition. Alarm ringback is factory set for 30 minutes, adjustable in 10 minute increments from 10 to 60 minutes.

Filter indicator lamp glows when electrostatic filter requires removal for cleaning.

Door alarm indicator has 2 minute delay until audible alarm activates. Delay time is adjustable.

Set-point entry advances digital to next value from 0 to 9.

Set-point entry advances digital display to next position.

Press to set temperature. Set button is also used for other diagnostic functions.

Buzzer silence temporarily mutes audible alarm.

Alarm test verifies readiness of alarm function and Ni-MH battery charge.

Adjustable alarm set-points are factory set 10°C above and below set-point. Alarm parameters are adjustable by pressing up or down arrow keys and following the prompt.

Optimal Capacity & Footprint

The concept of High Density Storage is enabled by advances in Panasonic Cool Safe compressor design. The cost per 2" box of interior storage space is significantly lower in a Panasonic VIP® ultra-low freezer, generating immediate return on investment based on initial costs, operating costs, and maintenance costs over time.

MODEL NUMBER	MDF-U33V-PA	MDF-U53VA-PA	MDF-U56VC-PA	MDF-U76VC-PA	MDF-U76VA-PA
RACK POSITIONS, STANDARD CONFIGURATION	 3 Columns 4 Rows	 4 Columns 4 Rows	 4 Columns 4 Rows	 6 Columns 4 Rows	 6 Columns 4 Rows
FIBERBOARD BOXES, 2" HIGH (2ML) IN RACKS	216	352	384	576	576
SAMPLE VIALS, 2ML (2" BOX), 100-CELL DIVIDERS	21,600	35,200	38,400	57,600	57,600
FIBERBOARD BOXES, 3" HIGH (4ML) IN RACKS	144	224	256	360	384
SAMPLE VIALS, 4ML (3" BOX), 100-CELL DIVIDERS	14,400	22,400	25,600	38,400	38,400
STANDARD MICROPLATE WITH FOIL TAPE, IN RACKS	1,298	2,112	2,112	3,456	3,456
STANDARD MICROPLATE WITH COVER LID, IN RACKS	1,008	1,632	1,632	2,596	2,596
FULLY LOADED INVENTORY SYSTEMS	**MAXIMUM VIAL CAPACITY** INCLUDES FULL QUANTITY OF STORAGE RACKS, BOXES AND DIVIDERS				
SLIDING DRAWER INVENTORY RACKS 2" HIGH BOXES (2ML SAMPLE) 100-CELL DIVIDER	(6) GRD442A (6) GRD452SS	(8) GRD462SS (8) GRD452SS	(8) GRD443A (8) GRD452SS	(24) GRD462SS	(24) GRD462SS
SLIDING DRAWER INVENTORY RACKS, 3" HIGH BOXES (4ML SAMPLE) 100-CELL DIVIDER	(12) GRD433A	(8) GRD443A (8) GRD433A	(8) GRD443A (8) GRD452SS	(18) GRD443A (6) GRD433A	(24) GRD443A
INDIVIDUAL STORAGE RACK SYSTEM	**SLIDING DRAWER SAMPLE RACKS FOR FIBERBOARD STORAGE BOXES** (BOXES NOT INCLUDED)				
SLIDING DRAWER RACK, FOR 2" HIGH (2ML SAMPLE) BOXES; HOLDS 6 BOXES HIGH X 4 BOXES DEEP		GRF462SS Capacity 8	GRF462SS Capacity 16	GRF462SS Capacity 24	GRF462SS Capacity 24
SLIDING DRAWER RACK, FOR 2" HIGH (2ML SAMPLE) BOXES; HOLDS 5 BOXES HIGH X 4 BOXES DEEP	GRD452SS Capacity 6	GRD452SS Capacity 8			
SLIDING DRAWER RACK, FOR 2" HIGH (2ML SAMPLE) BOXES; HOLDS 4 BOXES HIGH X 4 BOXES DEEP	GRD442A Capacity 6				
SLIDING DRAWER RACK, FOR 3" HIGH (4ML SAMPLE) BOXES; HOLDS 4 BOXES HIGH X 4 BOXES DEEP		GRD443A Capacity 8	GRD443A Capacity 8	GRD443A Capacity 24	GRD443A Capacity 24
SLIDING DRAWER RACK, FOR 3" HIGH (4ML SAMPLE) BOXES; HOLDS 3 BOXES HIGH X 4 BOXES DEEP	GRD433A Capacity 12	GRD433A Capacity 8	GRD433A Capacity 8		
INDIVIDUAL STORAGE RACK SYSTEM	**STANDARD CELLULAR INVENTORY RACKS FOR FIBERBOARD STORAGE BOXES** (BOXES NOT INCLUDED))				
INVENTORY RACK FOR 2" (2ML SAMPLE) BOXES; 6 BOXES HIGH X 4 BOXES DEEP		GRF462SS Capacity 8	GRF462SS Capacity 16	GRF462SS Capacity 24	GRF462SS Capacity 24
INVENTORY RACK FOR 2" (2ML SAMPLE) BOXES; 5 BOXES HIGH X 4 BOXES DEEP	GRF452SS Capacity 6	GRF452SS Capacity 8			
INVENTORY RACK FOR 2" (2ML SAMPLE) BOXES; 4 BOXES HIGH X 4 BOXES DEEP	GRF442A Capacity 6				
INVENTORY RACK FOR 3" (4ML SAMPLE) BOXES; 4 BOXES HIGH X 4 BOXES DEEP		GRF443A Capacity 8	GRF443A Capacity 8	GRF443A Capacity 24	GRF443A Capacity 24
INVENTORY RACK FOR 3" (4ML SAMPLE) BOXES; 3 BOXES HIGH X 4 BOXES DEEP	GRF433A Capacity 12	GRF433A Capacity 8	GRF433A Capacity 8		

Technical Specifications

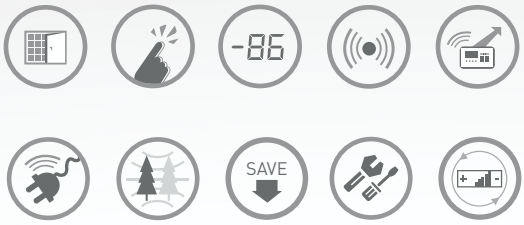
MODEL NUMBER	MDF-U33V-PA	MDF-U53VA-PA	MDF-U56VC-PA	MDF-U76VC-PA	MDF-U76VA-PA
INTERIOR VOLUME	11.8 cu.ft. 333 L	18.3 cu.ft. 519 L	18.6 cu.ft. 526 L	25.7 cu.ft. 728 L	25.7 cu.ft. 728 L
AREA FOOTPRINT, NOMINAL	6.25 sq.ft. 0.58 m^2	7.24 sq.ft. 0.67 m^2	7.24 sq.ft. 0.67 m^2	9.51 sq.ft. 0.88 m^2	9.51 sq.ft. 0.88 m^2
ELECTRICAL, 60 HZ	115V, AC, 15 amp	115V, AC, 20 amp	208/230V, AC, 15 amp	208/230V, AC, 15 amp	115V, AC, 20 amp
PATENTED VIP® CONSTRUCTION					
INSULATED INNER DOOR	Steel-framed, high impact plastic with foam-in place insulation				
INNER DOOR CONFIGURATION	2	2 (4 optional)	2 (4 optional)	2 (4 optional)	2 (4 optional)
DOOR GASKETS	Multi-point compression gaskets				
CONDENSER FILTER, EASY CLEANING	Electrostatic filter standard, front accessible for easy access, no tools required				
ROUNDED INTERIOR CORNERS	Simplify Cleaning				
SHELF BRACKETS	Incrementally adjustable				
CASTERS	High-impact 4 with leveling feet				
SEISMIC RESTRAINTS	Standard; hard connection to facility wall				
ACCESS PORTS	Multiple ports allow use of injection tubes, probes, leads, instrumentation				
DIMENSIONS & WEIGHT					
INTERIOR (W X F-B X H)	19.3" x 23.6" x 44.9" 490 x 600 x 1140 mm	24.8" x 23.6" x 54.3" 630 x 600 x 1380 mm	24.8" x 23.6" x 55.1" 630 x 600 x 1400 mm	34.2" x 23.6" x 55.1" 870 x 600 x 1400 mm	34.2" x 23.6" x 55.1" 870 x 600 x 1400 mm
EXTERIOR (W X F-B X H)	26.4" x 34.1" x 73.2" 670 x 870 x 1860 mm	30.3" x 34.4" x 78.3" 770 x 870 x 1990 mm	30.3" x 34.4" x 78.3" 770 x 870 x 1990 mm	39.8" x 34.4" x 78.3" 1010 x 870 x 1990 mm	39.8" x 34.4" x 78.3" 1010 x 870 x 1990 mm
NET WEIGHT, EMPTY	562 lbs 255 kg	660 lbs 290 kg	672 lbs 305 kg	805 lbs 365 kg	820 lbs 373 kg
REFRIGERATION SYSTEM, HFC REFRIGERANTS, PANASONIC COOL SAFE HIGH PERFORMANCE COMPRESSORS					
HIGH STAGE	1 HP	½ HP	1 HP	1 HP	1 HP
LOW STAGE	¾ HP	1 HP	1½ HP	1½ HP	1½ HP
VOLTAGE BOOSTER, BUILT-IN	Not Available	Not Available	Standard	Standard	Not Applicable
SOUND ABATEMENT	Standard	Standard	Standard	Standard	Standard
REFRIGERATION SYSTEM, HFC REFRIGERANTS, PANASONIC COOL SAFE HIGH PERFORMANCE COMPRESSORS					
POWER, AC, 1 PHASE	115V	115V	208-230V	208-230V	115V
RECOMMENDED BREAKER, DEDICATED	15 amp	20 amp	15 amp	15 amp	20 amp
NEMA PLUG / RECEPTACLE	5-15P/5-15R 	5-20P/5-20R 	6-15P/6-15R 	6-15P/6-15R 	5-20P/5-20R 

PRO Series

Insulated for Reduced Carbon Footprint.

What makes PRO Series freezers so efficient?

Models: MDF-U7486SC-PA, MDF-U5486SC-PA



Think Green: Environmentally friendly refrigerants, RoHS compliant and low-noise operation.

PRO Series -86°C Freezer
Performance Advantages

Panasonic's conventionally insulated PRO Series ultra-low freezers provide energy savings while minimizing carbon footprint throughout the laboratory without compromising performance. It also maintains the internal temperatures as low as -86°C. All models use Panasonic-designed compressors for ultra-low temperature applications. Manufactured with foam-in-place insulation to maximize interior temperature uniformity, they are ideally suited for use in hospitals and laboratories for long-term preservation and storage of specimens and components, as well as material testing.

The Panasonic ergonomic design features a high-security Easy-In/Easy-Out door latch designed for simplicity and safety. The outer door latch closes smoothly with a single-hand action over a cam action bearing. The outer door can be secured with an independent padlock provided by customer.

Inner Door Latches provide single-hand access.

Panasonic microprocessor-based controller includes comprehensive set-point, alarm, monitoring and diagnostic functions.

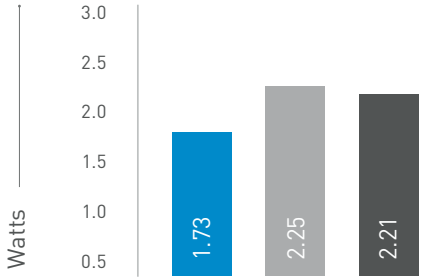
1. The insulation used in Panasonic's PRO Series ultra-low temperature freezers is high density rigid, foamed-in-place polyurethane. This design prevents the insulation layers from distortion and cracking that might occur due to temperature differences inside and out.
2. Ergonomic one handed Easy-In / Easy Out outer door latch will accept a padlock.
3. Microprocessor-based controller.
4. Remote alarm contacts can be connected to independent monitoring system.
5. Insulated sealing inner doors help maintain interior temperature during routine openings. Two inner doors are standard.
6. "Eagle Beak" inner door latches.
7. Easy front access to washable, electrostatic condenser filter for routine condenser air filter cleaning.
8. High impact recessed casters simplify installation.
9. Panasonic designed compressors specifically designed for low temperature use offer maximum reliability.
10. Multiple access ports permit independent probes, instrumentation or liquid CO_2 back-up system injection.
11. Vacuum release port.

PRO Series Comparative Energy Performance

Power Consumption

Panasonic freezers provide reduced operational cost for highly efficient sample storage*.

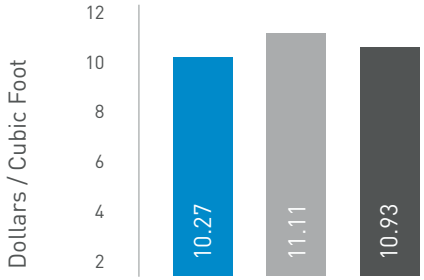
Power Consumption By Capacity
(KW/day/box capacity)



Operating Cost

Panasonic freezers emit less heat into the laboratory, minimizing air conditioning costs*.

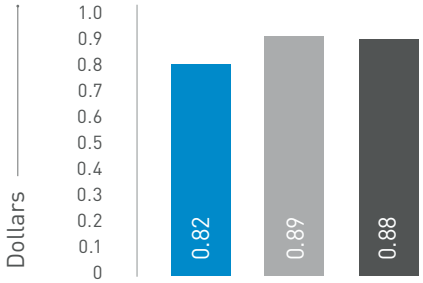
Total annual operating cost for operation and cooling by capacity



Less Emission

Panasonic freezers help the environment by reducing carbon footprint.

Annual CO_2 Emissions by Box Capacity



*Based on internal performance data. Tested in 25°C ambient environment. Freezer cycling at -80°C. Cabinet volume, 25 cu. ft. Average cabinet temperature based on temperature mapping (15 thermocouples).

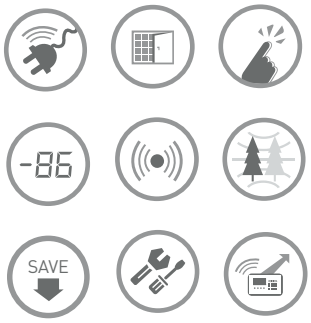
Panasonic MDF-U7486SC-PA | Brand A | Brand B

MODEL NUMBER	MDF-U5486SC-PA	MDF-U7486SC-PA
REFRIGERATION SYSTEM, HFC REFRIGERANTS, COOL SAFE HIGH PERFORMANCE COMPRESSORS		
HIGH STAGE	1100 W	1100 W
LOW STAGE	1100 W	1100 W
VOLTAGE BOOSTER, BUILT-IN	Standard	Standard
SOUND ABATEMENT	Standard (< 51dB(A))	Standard (< 51dB(A))
CONSTRUCTION		
SHELF	Stainless steel, adjustable 3 shelves	
ACCESS PORT	.066" (17 mm) diameter,	
REFRIGERANTS	HFC refrigerants	
ALARM	High/low temp, Power failure, Filter check, Battery check	
REMOTE ALARM CONTACT	N.O. and N.C., allowable contact capacity: DC30V, 2A	

Cryogenic Freezer

Temperature Uniformity for Long-term Storage.

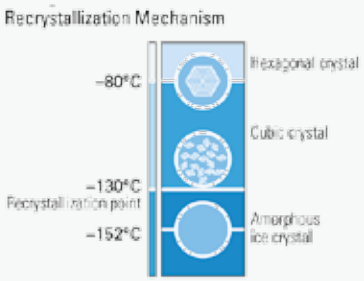
Models: MDF-C2156VANC-PA



Think Green: Environmentally friendly refrigerants, RoHS compliant and low-noise operation.

What keeps our Cryogenic freezer so stable?

Panasonic Cryogenic freezer maintains uniform temperature of -150°C for stable, long-term preservation of cells and tissue. Panasonic VIP® PLUS Cryogenic Series -150°C ultra-low temperature freezer achieves more storage capacity than a conventionally insulated freezer without increasing footprint.

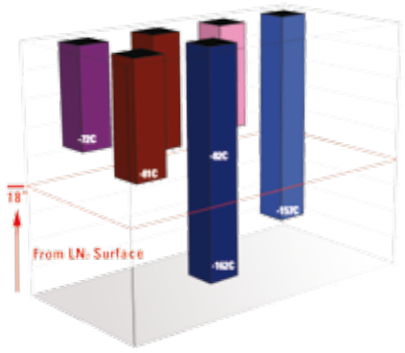


Uniform Cryogenic Temperatures

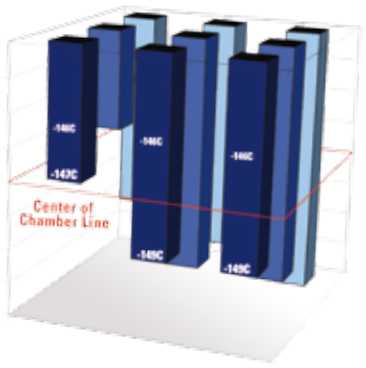
±5°C uniformity* in a mechanically refrigerated design promotes better top-to-bottom uniformity than liquid nitrogen vapor-phase storage, without the concern of cross-contamination often associated with liquid nitrogen (liquid phase storage).

*Based on internal validation data tested at -150°C setpoint, in an empty chamber with 23°C ambient temperature.

Liquid Nitrogen freezer (Vapor Phase)



Panasonic MDF-C215VANC-PA
mechanically refrigerated cryogenic freezer



Comparison of temperature distribution in a liquid nitrogen freezer (vapor phase) and Panasonic's MDF-C2156VANC-PA mechanically refrigerated cryogenic freezer. Graph shows temperatures at different locations within the chamber. This data demonstrates that 100% of the MDF-C2156VANC-PA storage space maintains uniform storage temperatures safely below -130°C, while temperature in LN_2 vapor system is dependent on storage location.

* The data may vary depending on the use, circumstances and optional accessories. Validation documents can be provided for each serial number with an additional fee.

Product Features

- Patented revolutionary vacuum insulation cabinet construction reduces wall thickness and achieves more storage capacity than a conventionally insulated freezer without increasing the footprint.
- 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.
- 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.
- Graphic LCD panel with pop-up menu function on control panel provides a precise visual display and allows intuitive operation.
- VIP® PLUS offers superior performance in insulating properties providing unsurpassed uniformity in the chamber- top to bottom, side to side, front to back.
- The MDF-C2156VANC-PA is equipped with LN_2 backup system as standard to prepare for any contingency. The built-in LN_2 back-up system is self activated if a power outage occurs. This feature helps ensure that the contents will be protected in the event of any power failure.
- Achieves 50% higher energy conservation than conventionally insulated model.
- The newly developed refrigeration system and the freezer structure offer a quiet environment.

MODEL NUMBER	MDF-C2156VANC-PA
TEMPERATURE RANGE	-125°C to -150°C (1°C increments)
MAX COOLING PERFORMANCE	-150°C (ambient temp 30°C)
UNIFORMITY	±7°C at -150°C (empty chamber, ambient temp 24°C)
CAPACITY	8.2 cu.ft. 231 liters
EXTERIOR DIMENSIONS (W X F-B X H)	68.1" x 30.1" x 39.8" 1730 x 765 x 1010 mm
INTERIOR DIMENSIONS (W X F-B X H)	29.9" x 19.5" x 24.2" 760 x 495 x 615 mm
NET WEIGHT	Approx.715lbs (325kg)
ACCESS PORT	40mm diameter, 1 location
COMPRESSOR	Hermetic type, 1100W (high stage side) 1100W (low stage side)
REFRIGERANTS	CFC Free
ALARM	High/Low temperature, power failure, filter check, self diagnosis, lid check
REMOTE ALARM CONTACT	Allowable contact capacity DC 30V, 2A
POWER REQUIREMENTS	208V-230V, 1 phase, 60Hz NEMA 6-15R (15 Amp) Receptacle

Chest Freezers

Space-Saving stability.

Models: MDF-594C-PA, MDF-794C-PA
MDF-C8V1-PA

What makes Chest freezers compact yet equally effective?

All ultra-low chest models use Panasonic-designed compressors for ultra-low temperature applications. Manufactured with foamed-in-place insulation, they are ideally suited for use in hospitals and laboratories for long-term preservation and storage of specimens and components, as well as materials testing.

Microprocessor Controls

Comprehensive set-point, alarm, monitoring, and diagnostic functions based on Panasonic-built microprocessor controller with digital display of all input/output functions.

Panasonic-Designed Refrigeration and Compressors

Designed by Panasonic specifically for rugged ultra-low temperature applications in a laboratory environment. CFC-free refrigerants only.

High-performance refrigeration system with foam-in-place cabinet insulation maximizes interior temperature uniformity and protects against fluctuating ambient temperatures.

High Density Blown-In Foam Insulation and Heated Gasket Seal

In ultra-low temperature freezers, effective insulation is critical. The insulation used in Panasonic ultra-low freezers is two layers of rigid, foamed-in-place polyurethane, placed together to form a double-insulation wall.

This design prevents the insulation layers from distortion and cracking that might occur due to temperature differences inside and out.

Frost and icing on the top edges and gaskets are prevented by utilization of a heated mullion, which recycles heat from the refrigeration system without affecting chamber uniformity.

Built-In Temperature & Power Failure Alarms (Lamp/Buzzer)

In case of power failure or an irregular rise in temperature, a high capacity, rechargeable battery-operated indicator lamp and alarm will be activated.

Optional CO_2 and LN_2 back-up systems are available and are self-activated when a power outage occurs. This equipment helps ensure that the contents will be protected in the event of any power failure or mechanical trouble.

Optional Accessories

MODEL NUMBER	MDF-C8V1-PA
TEMPERATURE RANGE	-60°C to -80°C (-1°C increments)
MAX COOLING PERFORMANCE	-80°C (Ambient Temp 30°C)
EFFECTIVE CAPACITY	3.0 cu.ft. (85 liters)
EXTERIOR DIMENSIONS (W X F-B X H)	21.6" x 27.0" x 37.2" / 550 x 685 x 945 mm
INTERIOR DIMENSIONS (W X F-B X H)	15.9" x 19.3" x 16.9" / 405 x 490 x 425 mm
NET WEIGHT	Approx. 148lbs (67kg)
STORAGE CAPACITY	2" Box: 42 pcs. (SCR-072 x 6 racks) 3" Box: 30 pcs
OUTER DOOR / INNER DOOR	Outer Lid: 1 piece; Inner Lid: 1 piece
INSULATION	VIP® PLUS rigid polyurethane foam (HC)
COOLING SYSTEM	115V / 60Hz / 1 Phase NEMA 5-15P Plug
COMPRESSOR	Rotary Type
REFRIGERANT	HFC
EVAPORATOR	Tube on Sheet Type
ALARM SYSTEM	High / Low Temp. Alarm (±5°C to ±20°C); Power Failure Alarm; Remote Alarm Contact: DC30C, 2A (N.O./N.C.)

MODEL NUMBER	MDF-594C-PA	MDF-794C-PA
TEMPERATURE RANGE	-20°C to -86°C	
CABINET INSULATION	Rigid polyurethane foamed-in place	
EXTERIOR DIMENSIONS (W X F-B X H)	79.1" x 30.3" x 42.1" / 2010 x 770 x 1070 mm	101.2" x 30.3" x 42.1" / 2570 x 770 x 1070 mm
INTERIOR DIMENSIONS (W X F-B X H)	50.3" x 19.7" x 30" / 1280 x 500 x 762 mm	72.4" x 19.7" x 30" / 1840 x 500 x 762 mm
EFFECTIVE CAPACITY	19.2 cu.ft. (487 Liters)	24.8 cu.ft. (701 Liters)
EXTERIOR CABINET	Painted Steel	
INTERIOR CABINET	Stainless Steel	
INNER SUB-LID	3	4
NET WEIGHT (APPROX.)	672lbs (303kg)	827lbs (347kg)
COMPRESSOR (HIGH STAGE)	Hermetic type 750W	Hermetic type 1100W
COMPRESSOR (LOW STAGE)	Hermetic type 750W	Hermetic type 1100W
EVAPORATOR (HIGH STAGE)	Cascade condenser	
EVAPORATOR (LOW STAGE)	Tube on sheet (shared with interior)	
CONDENSER (HIGH STAGE)	Fine and tube type	
CONDENSER (LOW STAGE)	Shell and tube type	
TEMPERATURE CONTROL	Microprocessor: Keypad input; Temp. input range: -20°C to -86°C (1C increment); Set value memory: nonvolatile memory	
TEMPERATURE DISPLAY	Digital Display	
SENSOR	Platinum Resistance (Pt. 100)	
ALARM SYSTEM	Selectable high temp. alarm (+10°C & +15°C from set point), Power Failure alarm, Filter check lamp, Remote alarm contact	
POWER REQUIREMENT	208 / 220V / 60hz built-in voltage booster	

Professional Service and Support

We provide full product service support to maintain Panasonic standards of product safety, reliability and high performance. The combination of our multi-national network of factory-trained service professionals, detailed documentation of field performance, and high-value on the customer feedback helps us to deliver best-in-class, end-user support for our customers.

Convenience of Panasonic Product Service

- Panasonic service specialists are trained to:
  - Perform remote and on-site diagnostics
  - Repair and replace worn components
  - Offer preventative maintenance programs as per your needs and budget
- Many Panasonic Healthcare products include self-diagnostics that permit authorized service technicians to determine how and when service calls are required.
- We offer training to selected facility biomedical engineers and service staff for authorized in warranty and post-warranty repairs.
- Because our products are sold and serviced worldwide, products acquired in one country under grant or facility-sharing programs are easily supported if moved to facilities in the next city or around the world.

Freezer Monitoring - LabAlert™ System

OPTIONAL ON ALL MODELS

Complete your preservation requirements with Panasonic LabAlert™ Monitoring solution. LabAlert™ makes the monitoring of your freezer easier than ever. You can keep a constant check on the temperature, pressure, door status, and refrigerant leaks that your samples are exposed to– anytime, anywhere. Easy set up, affordable pricing, infinite scalability, and intuitive user interface.

For iPhone, iPad & Android devices

Access your LabAlert™ account from anywhere, at any time. All you need is a computer, smartphone or tablet device.

For Web

The web and app-based interfaces let you set up customizable dashboards to centrally monitor your equipment in a single view.

SIMPLE SETUP

STEP 1 - Unit

- Install Sensor to Freezer
- Plug in Probe to Sensor

STEP 2 - Receiver

- Open Freezer Access Port
- Place Probe into Freezer

STEP 3 - Cloud

- Position Probe in Chamber
- Activate Sensor

STEP 4 - You

- Sensor Communicates with Gate
- Customer Monitors Data on LabAlert™

FEATURE	ADVANTAGE	LABALERT™	COMPETITORS
COST	✓	Economical and versatile choice - Cost decreases with the increase in units	Not economical with larger number of units
COMPATIBILITY	✓	Compatibility with multiple systems	Not compatible to other units
COMPLIANCE	✓	21 CFR Part 11 Compliance, NAFEM data protocol, TJC standard and HACCP	Some of them are 21 CFR Part 11 compliant
HOSTING	✓	Web, App, Cloud, Standalone Software	Only web or local
RANGE	✓	WiFi - 2.4 GHz	Wired or Wireless
SCALABILITY	✓	Ability to expand infinitely for multiple units	Do not have such flexible capabilities
MAINTENANCE	✓	Preventative maintenance reminders and executive summary reports with min/max recordings	Simple summary of real time data + Historical chart data

Validation Services

Panasonic offers a wide range of high-quality services for all our equipment. These services include on-site validation, customer validation support packages, factory acceptance testing and NIST calibration.

Choosing Panasonic as an equipment supplier and validation consultant can greatly reduce the time and cost involved with getting new equipment compliant and ready for use.

Unique Services Panasonic Offers:

- On-site consultation
- Unit specific authorized protocol documents
- Customizable testing procedures to meet customer specific requirements
- Free archiving of unexecuted testing protocols
- Unbiased testing of competitive equipment

Pre-delivery Services:

- Validation support
- Consultation
- Factory Acceptance Testing
- Calibration
- Temperature mapping

On-site Services:

- Installation qualification
- Operational qualification
- Performance qualification
- Calibration
- Temperature mapping

Panasonic

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