



MDF-DU901VHA-PA

## VIP® ECO

Large Volume  
-86°C Ultra-Low Temperature Freezer  
with Natural Refrigerants

MDF-DU901VHA-PA, 115V

29.8 cu.ft. | 845 L



The MDF-DU901VHA-PA is a large volume high performance ultra-low temperature freezer ideal for use in biorepositories or facilities where bulk storage of sensitive biologicals are managed. This freezer delivers optimum performance over a range of setpoints from -50°C to -86°C, adjustable in 1°C increments. It operates with natural refrigerants at 115V power and can pass through a standard 36" wide doorway for new or replacement installation; (may require temporary removal of exterior stand-off brackets).

### Natural Refrigerants, Intelligent Compressors

The robust refrigeration system is powered by a new generation of high performance inverter compressors with natural refrigerants. These compressors are supervised by proprietary algorithms in the main controller firmware to maintain the most efficient energy consumption. Reserve refrigeration power assures fast temperature recovery following door openings and tolerance for high ambient conditions.

### Energy Efficient Performance

The MDF-DU901VHA-PA combines upright freezer cabinet design, vacuum composite insulation and variable speed compressors that operate independently and only on demand. All natural refrigerants support facility sustainability objectives without compromising reliability, performance or reserve power needed to tolerate real world conditions. Operating costs are minimized while stored product protection is maintained.

### High Capacity Storage, Minimal Footprint

The upright cabinet design includes a patented VIP Plus insulation composite which creates maximum interior space efficiency. It is designed and tested to tolerate high ambient temperatures in warm labs or hallways. The upright cabinet orientation holds up to 672, 2" boxes or 448, 3" boxes within a 10.79 sq.ft. (~1.0 sq.m) footprint.



### Microprocessor Controller

An integral microprocessor controller combines setpoint security, monitoring, predictive performance and data logging functions into a single eye-level display. The large color LCD touchscreen can be controlled with a gloved hand. A USB port permits downloading of operating history as desired.



### Large Volume Efficiency

As sample volumes in biorepositories and biobanks increase exponentially, the high capacity storage chamber offers space for expansion and overflow from crowded smaller freezers.



### Ergonomic Interface

The EZlatch door handle (patent pending) is central to the inventory access system. It permits secure, one-hand opening and closing with a minimum of effort while preventing frost build-up. Positive latching insulated inner doors supplement outer door insulation. A manual vacuum relief port permits quick re-entry.

# VIP<sup>ECO</sup> -86°C Ultra-Low Temperature Freezer with Natural Refrigerants

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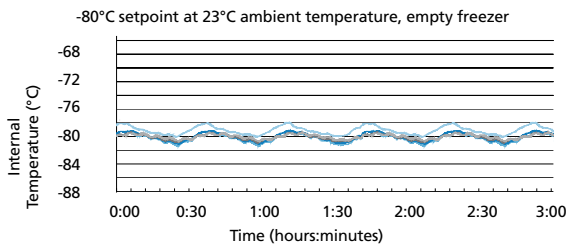


Model MDF-DU901VHA-PA showing insulated inner doors and EZlatch access.

## VIP Plus Insulated Panels

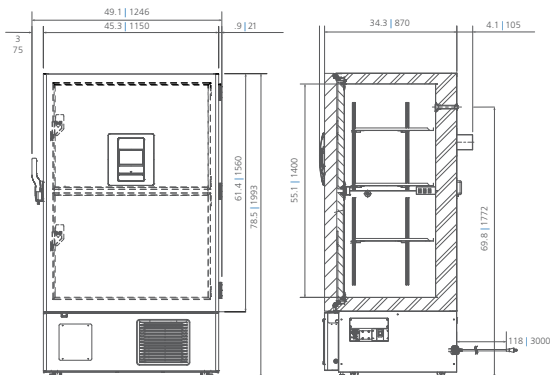
Inside-out engineering starts with a VIP Plus insulation composite which results in an efficient, thin-wall cabinet. Insulated inner doors improve temperature uniformity and cold air loss during door opening and extend warm-up times during power outages.

## Temperature Uniformity Data:



## Dimensions

Unit : inch | mm



Model Number		MDF-DU901VHA-PA
External Dimensions (W x D x H) <sup>1)</sup>	inches   mm	45.3 x 34.3 x 78.5   1150 x 870 x 1993
Internal Dimensions (W x D x H)	inches   mm	39.8 x 23.6 x 55.1   1010 x 600 x 1400
Volume	cu.ft.   liters	29.8   845
Net Weight	lbs   kg	723   328
Capacity (2" boxes)	qty	672
Capacity (3" boxes)	qty	448
Inventory Racks (2" boxes)	qty	28
Inventory Racks (3" boxes)	qty	28
<b>Performance</b>		
Warranty <sup>2)</sup>		5 years parts and labor
Cooling Performance <sup>3)</sup>	°C	-86
Temperature Setting Range <sup>3)</sup>	°C	-50 to -90 in 1° increments
Temperature Control Range <sup>3)</sup>	°C	-50 to -86 in 1° increments
<b>Control</b>		
Controller		Microprocessor, touchscreen data entry, password protected
Display		LCD color touchscreen
Temperature Sensor		Pt-1000
<b>Refrigeration</b>		
Refrigeration System		Synchronized variable speed cascade system
Compressors	W	(2) 1000, variable speed
Refrigerant		High-stage R-290 natural refrigerant Low-stage R-170 natural refrigerant
Insulation Thickness, Material	inches   mm	3.1   78, rigid polyurethane foam (PUF) + VIP Plus vacuum insulated panels
<b>Construction</b>		
Exterior Material		Painted electrogalvanized steel
Interior Material		Powder coated electrogalvanized steel
Outer Door	qty	1 (key lock with provision for optional padlock)
Inner Doors	qty	2 (insulated, ABS, stainless steel frames, positive latches)
Shelves	qty	3 (adjustable)
Shelf Dimensions (W x D)	inches   mm	38.9 x 20.9   988 x 533
Max. Load per Shelf	lbs   kg	110   50
Max. Load - Total Freezer	lbs   kg	1266   414.4
Manual Vacuum Relief	qty	1: lower left side
Access Ports	qty	2: back wall and chamber floor
Access Port Diameter	inches   mm	0.6   17
Casters	qty	4 (2 leveling feet on front base)
<b>Alarms (V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm)</b>		
Power Failure		V-B-R
Temperature (High and Low)		V-B-R
Sensor Failure		V-B-R
Door Open		V-B
Battery Check		V
Remote Alarm Contacts		DC 30V 2A (normally open, normally closed, common)
<b>Electrical and Noise Level</b>		
Power Supply		115V, 1Ø, NEMA 5-20P, requires NEMA 5-20R receptacle
Noise Level <sup>4)</sup>	dB(A)	52
<b>Options</b>		
Inner Door Kit with 4 Smaller Doors <sup>5)</sup>		MDF-9ID-PW
Liquid CO <sub>2</sub> Back-Up System		MDF-UB7-PW
Liquid Nitrogen Back-Up System		MDF-UB7-PW-LN2
<b>Temperature Recorder</b>		
Circular Type	6", 7 day circular	MTRC954
Chart Paper	52 charts per box	C7100386REV
Ink Pen	pack of 6	R252
<b>Optional Communication System</b>		
Wireless, Cloud-Based, Automatic Data Management		LabAlert <sup>®</sup> Monitoring System

<sup>1)</sup> Exterior dimensions of cabinet excluding handle, rear stand-off brackets and other external projections. Consult product web page for doorway entry instructions, less than 36": [www.phcd.com/us/biomedical/preservation/ultra-low-freezers/mdf-du901vhapa](http://www.phcd.com/us/biomedical/preservation/ultra-low-freezers/mdf-du901vhapa)

<sup>2)</sup> Current warranty offered at time of printing and may be subject to change; US and Canada only

<sup>3)</sup> Air temperature measured at freezer center, ambient temperature +30°C, no load

<sup>4)</sup> Nominal value, background noise 20 dB(A)

<sup>5)</sup> Installation of small inner door kit may affect usable storage capacity



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Specifications are subject to change without notice.

For latest specification information contact PHC Corporation of North America at [info@us.phcd.com](mailto:info@us.phcd.com). Performance data herein is based on independent testing at time of publication.

