

MDF-DU302VX-PA



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## TwinGuard®

-86°C Ultra-Low Temperature Upright Freezer

12.7 cu.ft. | 360 L



The patented TwinGuard -86°C upright freezer is powered by a unique concept of two auto-cascade cooling circuits that work together, both independently and concurrently, to provide continuity in stored product protection over a range of real world conditions. The slim profile design permits installation in small spaces.

### Ultimate Sample Protection

The dual cooling system offers the highest level of sample protection through the use of two independent refrigeration systems that maintain -86°C temperature. Should a service event occur, temperatures will hold at -80°C\*. The two circuits work together for fast temperature recovery.

\* Refer to the user manual for detailed performance information and specifications

### Valuable Sample Storage

With two complementary refrigeration systems, each capable of sustaining ultra-low temperatures, the TwinGuard design expands the circle of protection for maximum safety of stored product. Optional CO<sub>2</sub> back-up systems maintain a margin of safety for short-term operation in case of a power loss.

### Efficient Space Management

This freezer is ideal for personal use where shared, remote or off-site storage of critical samples is not desirable. It requires less space than a standard ultra-low temperature freezer, yet holds up to 240 standard 2" storage boxes in only 6.36 sq.ft. (0.6m<sup>3</sup>) of floor space.



#### EZlatch

EZlatch is the centerpiece of a holistic inventory access and frost mitigation system. The simplified, one-handed, comfortable operation keeps TwinGuard upright freezers operating at maximum energy efficiency.



#### Security and Control Monitoring

An eye-level, door mounted color LCD touchscreen allows full user control while the USB port makes transferring logged data to a PC convenient. All performance attributes are displayed and an internal time/temperature log is expressed in graphic form.



#### Predictive Performance

The freezer is managed by a microprocessor digital controller. Data is continuously collected throughout the system to predict any deviations from expected performance, which would in turn initiate alarms with audible and visual alerts.



The outer door gasket is easily removed and replaced without tools while the freezer remains in operation.



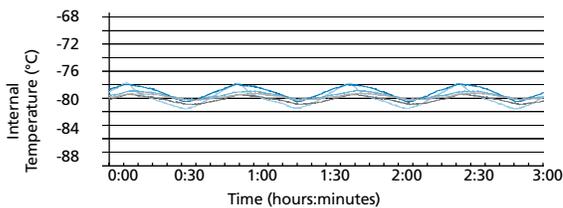
Model MDF-DU302VX-PA shows inner door and shelf layout

### Improved Temperature Performance

The TwinGuard -86°C upright freezer design provides optimal temperature stability and uniformity. During routine door openings, the insulated inner doors minimize the loss of cold air even when the outer door is open.

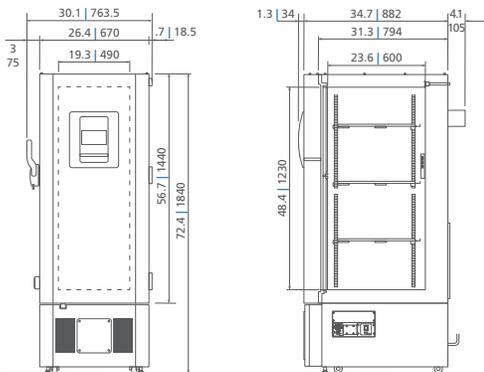
### Temperature Uniformity Data:

-80°C setpoint at 23°C ambient temperature, empty freezer



### Dimensions

Unit : inch | mm



Model Number		MDF-DU302VX-PA
External Dimensions (W x D x H) <sup>1)</sup>	inches   mm	26.4 x 34.7 x 72.4   670 x 882 x 1840
Internal Dimensions (W x D x H)	inches   mm	19.3 x 23.6 x 48.4   490 x 600 x 1230
Volume	cu.ft.   liters	12.7   360
Net Weight	lbs   kg	496   225
Capacity (2" boxes)	qty	240
Capacity (3" boxes)	qty	144
Inventory Racks (2" boxes)	qty	12
Inventory Racks (3" boxes)	qty	12
Performance		
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
Cooling Performance <sup>3)</sup> Service Event (System A or B)*	°C	-80
Control		
Controller		Microprocessor, touchscreen data entry, password protected
Display		LCD color touchscreen
Temperature Sensor		Pt-1000
Refrigeration		
Refrigeration System	qty	2 (auto-cascade)
Compressors	W	(2) 450
Refrigerant		Mixed HC/HFC blended
Insulation Thickness, Material	inches   mm	3.1   80, foamed-in-place + VIP Plus vacuum insulated panels
Construction		
Exterior Material		Painted steel
Interior Material		Painted steel
Outer Door	qty	1 (key lock with provision for optional pad lock)
Inner Doors	qty	2 (insulated ABS, stainless steel frames, positive latches)
Shelves	qty	3 (adjustable)
Shelf Dimensions (W x D)	inches   mm	18.7 x 20.9   475 x 531
Max. Load per Shelf	lbs   kg	110   50
Vacuum Release Port	qty	2: in door (automatic release) and side wall, lower left (manual release)
Access Ports	qty	3
Access Port Diameter	inches   mm	0.6   17
Casters	qty	4 (2 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
Cooling Circuit Abnormality		V-B-R
Door Open		V-B
Battery Check		V
Fan Motor Check		V
Remote Alarm Contacts		DC 30V 2A (normally open, normally closed, common)
Electrical and Noise Level		
Power Supply		208V-230V, 1Ø, 60Hz, NEMA 6-15P; requires NEMA 6-15R receptacle
Noise Level <sup>4)</sup>	dB(A)	52
Options		
Liquid CO <sub>2</sub> Back-Up System		MDF-UB7-PW-LN2
Temperature Recorder		
Circular Type	6", 7 day circular	MTRC954 <sup>5)</sup>
Chart Paper	52 charts per box	C7100386REV
Ink Pen	pack of 6	R252
Optional Communication System		
Wireless, Cloud-Based, Automatic Data Management		LabAlert® Monitoring System

<sup>1)</sup> Exterior dimensions of main cabinet only, excluding handle and other external projections

<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 +23°C, no load

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

<sup>5)</sup> Requires sensor cover MTR-DU7005F-PW

\* Refer to the user manual for detailed performance information and specifications

Specifications are subject to change without notice.

For latest specification information contact PHC Corporation of North America at info@us.phcd.com.

