



MDF-DU302VX-PA

## TwinGuard®

-86°C Ultra-Low Temperature Upright Freezer 12.7 cu.ft. | 360 L



The PHCbi Corporation 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 -70°C. The two circuits work together for fast temperature recovery.

### 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 in 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 center piece 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.



#### Ease of Use

A full alarm display includes a comprehensive alarm system with audible and visual warnings, unit diagnostics, running temperature log and predictive analytics.

# TwinGuard® -86°C ULT Upright Freezer

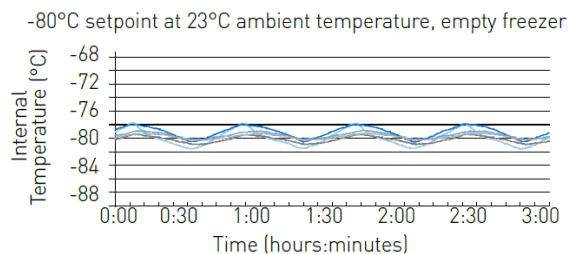
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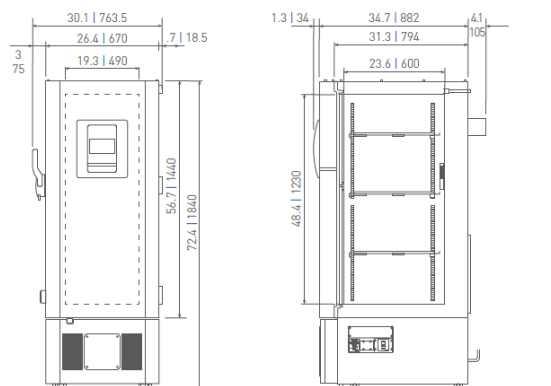
## Improved Temperature Performance

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:



## Dimensions



Model Number		MDF-DU302VX-PA
External Dimensions [W×D×H] <sup>1)</sup>	inches   mm	26.4 × 34.7 × 72.4   670 × 882 × 1840
Internal Dimensions [W×D×H]	inches   mm	19.3 × 23.6 × 48.4   490 × 600 × 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		
Cooling Performance <sup>2)</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	-70
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×D]	inches   mm	18.7 × 20.9   475 × 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 30V2A (normally open, normally closed, common)
Electrical and Noise Level		
Power Supply		220 V/ 60 Hz
Noise Level <sup>4)</sup>	dB(A)	52
Options		
Liquid CO <sub>2</sub> Back-Up System		MDF-UB7-PW
Temperature Recorder		
Circular Type		MTR-G85C-PE Chart paper RP-G85-PW Ink pen PG-R-PW Sensor cover MTR-DU700SF-PW
Continuous strip type		MTR-85H-PW Chart paper RP-85-PW Ink pen PG-R-PW Recorder housing MDF-S3085-PW Sensor cover MTR-DU700SF-PW

<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 +30°C, no load

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