



## TwinGuard®

-86°C Ultra-Low Temperature Upright Freezer

18.6 cu.ft. | 528 L



MDF-DU502VXC-PA | FZRDR19-ULT-220

The patented TwinGuard -86°C upright freezer is powered by a unique concept of two independent 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.

### Ultimate Sample Protection

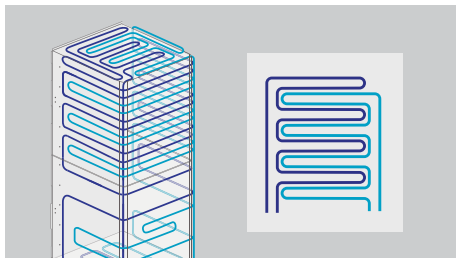
The dual cooling system offers the highest level of sample protection through the use of two independent refrigeration systems that maintain -86°C temperature. The two circuits work together for fast temperature recovery, while the secondary system keeps the temperature at -70°C if a service event occurs.

### Efficient Sample Storage

The use of VIP® Plus cabinet and door insulation, combined with a newly designed refrigeration system layout ensures a capacity of 384 2" storage boxes, requiring only 7.49 sq.ft. (0.70 m<sup>2</sup>) of floor space.

### Security Control and 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.



### Valuable Sample Storage

With two independent systems, each sustaining ultra-low temperatures, your samples remain safe. Optional CO<sub>2</sub> backup provides an extra layer of protection.



### 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.



### Ease of Use

The display panel 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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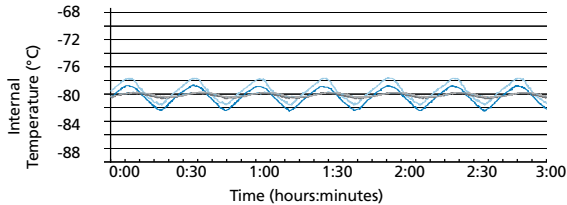
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## Improved Temperature Performance

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.

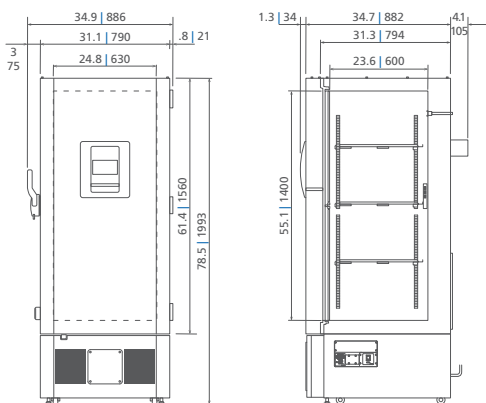
## Temperature Uniformity Data:

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



## Dimensions

Unit : inch | mm



Model Number		MDF-DU502VXC-PA   FZRDR19-ULT-220
External Dimensions (W x D x H) <sup>1)</sup>	inches   mm	31.1 x 34.7 x 78.5   790 x 882 x 1993
Internal Dimensions (W x D x H)	inches   mm	24.8 x 23.6 x 55.1   630 x 600 x 1400
Volume	cu.ft.   liters	18.6   528
Net Weight	lbs   kg	648   294
Capacity (2" boxes)	qty	384
Capacity (3" boxes)	qty	256
Inventory Racks (2" boxes)	qty	16
Inventory Racks (3" boxes)	qty	16
<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
Cooling Performance <sup>3)</sup> Service Event (System A or B)	°C	-70
<b>Control</b>		
Controller		Microprocessor, touchscreen data entry, password protected
Display		LCD color touchscreen
Temperature Sensor		Pt-1000
<b>Refrigeration</b>		
Refrigeration System	qty	2 (auto-cascade)
Compressors	W	(2) 1100
Refrigerant		Mixed HC/HFC blended
Insulation Thickness, Material	inches   mm	3.1   80, foamed-in-place + VIP Plus vacuum insulated panels
<b>Construction</b>		
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	24.2 x 21.0   615 x 534
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: upper back wall (back-up system), bottom left (recorder sensor), bottom right (access)
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
Fan Motor Check		V-B
Cooling Circuit Abnormality		V
Remote Alarm Contacts		DC 30V 2A (normally open, normally closed, common)
<b>Electrical and Noise Level</b>		
Power Supply		208V-230V, 1Ø, 60Hz, NEMA 6-15P, requires NEMA 6-15R receptacle
Voltage Booster		Standard, automatic, built-in
Noise Level <sup>4)</sup>	dB(A)	52
<b>Options</b>		
Inner Door Kit with 5 Smaller Doors		MDF-5ID5-PW
Inner Door Kit with 4 Smaller Doors		MDF-5ID4-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 <sup>5)</sup>
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® Monitoring System



PHC Corporation of North America

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

Specifications are subject to change without notice.  
 Performance data herein is based on independent testing at time of publication.