



MDF-DU503VXHA-PA

TwinGuard[®]eco

-86°C Upright Dual Voltage Freezer

18.6 cu.ft. | 528 L



Dual Cooling Protection Meets Sustainable Innovation

The next generation TwinGuard ECO ultra-low temperature freezers use natural refrigerants and inverter controlled compressors, reducing energy usage by up to 50%*. It offers enhanced access control via an electronic lock with facial recognition (optional) and NFC protection (optional) to provide the highest level of protection for your valuable samples.

Ultimate Sample Protection

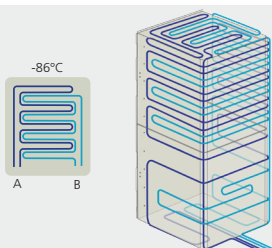
The dual cooling system offers the highest level of sample protection through the use of two independent refrigeration systems that maintain -86°C temperature. In the event of a malfunction in one circuit, the second circuit seamlessly takes over, sustaining the in-chamber temperature at -75°C.

Performance and Reliability

Naturally occurring hydrocarbon refrigerants are environmentally friendly with no ozone depletion. Combined with inverter technology, these refrigerants also provide more efficiency without compromising cooling performance, ambient tolerance, and recovery speeds following door openings.

Security Control and Monitoring

An eye level, door mounted, 10.1-inch high resolution LCD touchscreen allows full user control. A USB port makes transferring logged data easy. Many attributes are displayed in an internal time-temperature log that can be expressed in graphic form over time. It seamlessly integrates with LabSVIFT[®] for temperature monitoring, predictive analytics, and lab management.



Valuable Sample Storage

TwinGuard series freezers are ideal for safe, long term storage of your most high valued products, such as stem cells, embryos, cell lines, rare specimens, and other biological materials.



Natural Refrigerants

Natural refrigerants with very low Global Warming Potential (GWP), advanced compressors, and integrated electronics help minimize operating costs by reducing energy consumption and heat output.



Electric Lock

Track freezer access with details on who entered, when, and how long the door remained open with four lock options:

- Electric lock with passcode
- Dedicated key per unit
- Facial recognition (optional)
- Proximity card (optional)

*compared to previous model MDF-DU502VXC-PA

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EZlatch with Electronic Access Control
Standard electronic locking with unique key. Optional upgrades: NFC or facial recognition for advanced security.

Dual Cooling System

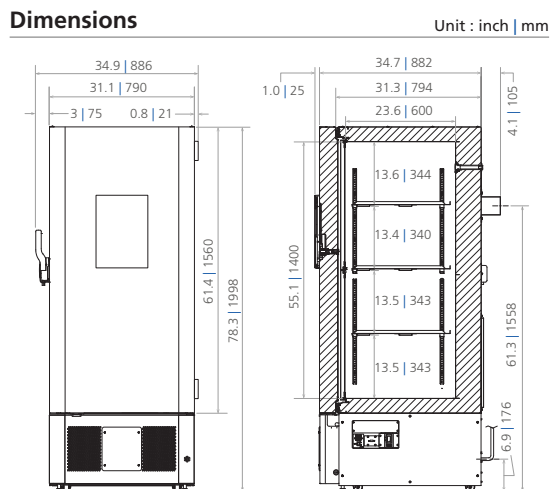
The dual cooling system offers ultimate sample protection. The two independent refrigeration systems provide a reliable and exceptionally stable -86°C ultra low temperature environment. If one system unexpectedly fails, the other can maintain the freezer in the -75°C range until service can be arranged.

Filterless Design

The freezer's filterless design minimizes routine maintenance by eliminating the need for regular filter cleaning.

Innovative Cabinet Design



The enhanced cabinet design with chamfered edges minimizes its footprint, making it ideal for multi-freezer laboratory setups.



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MDF-DU503VXHA-PA

Model Number		MDF-DU503VXHA-PA
External Dimensions (W x D x H) ¹	inches mm	31.1 x 34.7 x 78.3 790 x 882 x 1988
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	579 263
Capacity (2" boxes) (3" boxes)	qty	384 256
Inventory Racks (2" boxes) (3" boxes)	qty	16 16
Storage Efficiency	bx/cu.ft. bx/liter	20.6 0.72
Performance		
Cooling Performance ²	°C	-86°C
Temperature Setting Range	°C	-40 to -90 in 1°C increments
Temperature Control Range ²	°C	-40 to -86 in 1°C increments
Uniformity ³	°C	±5.0 at -80 °C set value
Power Consumption ³	kWh/day	6.8
Heat Disipation (BTU)	Per hour	967
Noise Level ⁴	dB (A)	52
Control		
Controller		Microprocessor with non-volatile memory, USB connectivity, IoT ready
Display		LCD touch screen
Controller Security		Screen lock with password protection. Optional facial or NFC screen unlock.
Temperature Sensor		Pt-1000
Refrigeration		
Refrigeration System		Independent dual-cooling
Compressors	W	2 x 920 (variable speed)
Refrigerant		HC mixed refrigerant HC (R-600/R-170/R-50) [113g per circuit]
GWP of Refrigerant		GWP= 1.8
Total Refrigerant Weight (CO ₂ equivalent)	t	0.00010
Insulation Material		Rigid polyurethane foam (PUF) + VIP Plus
Insulation Thickness	inches mm	3.14 80
Construction		
Exterior & Interior Material		Painted steel
Outer Door Outer Door Lock	qty type	1 Standard
Inner Doors	qty	2
Shelves	qty	3 (stainless steel)
Shelf Dimensions (W x D)	inches mm	24.2 x 21 615 x 534
Max. Load - per Shelf	lbs kg	110 50
Vacuum Release Port		Automatic
Access Ports	qty	3
Access Port Position		1 upper back wall center, 1 right hand back side floor and 1 left hand side floor
Access Port Diameter	inches mm	0.66 17
Casters	qty	4 (2 leveling feet on front base)
Alarms	(V= Visual Alarm, B= Buzzer Alarm, R= Remote Alarm, A= Adjustable, L= Logged)	
Power Failure High or Low Temperature		V-B-R-L
System Performance Issues		V-B-R-L
Door Open		V-B-L
Electrical		
Power Supply	 	220V, NEMA 6-15P, 60 Hz 8ft cord length (220V power cord with standard accessories in chamber) 115V, NEMA 5-15P, 60 Hz 8ft cord length (standard configuration)
Max Amps		5.1 8.9
Options		
Common Key Handle (with electric lock)	key #250	MDF-HUECO1-PW
Small Inner Door Kit	set of 4 set of 5	MDF-5ID4-PW MDF-5ID5-PW ⁵
NFC System ⁶		NFC reader: MTR-NFC-PW IC Cards (set of 5): MTR-IC-PW
Facial Recognition Access Control		MTR-FRC-PW
Liquid CO ₂ Back-up System		MDF-UB9-PW
Communication and Monitoring		
LabSVIFT		MTR-IoTWE1-PA (check with your rep for plans)
Analogue Outputs		MTR-420MA-PW Equipment Powered MTR420MAC- Equipment powered* MTR420MAL- Loop Powered *
Certifications and Warranty		
Certification		QPS listed
Warranty ⁷		5 years parts and labor

¹ Exterior dimensions of main cabinet only, excluding handle and other external projections

² Air temperature measured at freezer center, ambient temperature +30°C, no load

³ Measured using internal validation standards in 23°C ambient temperature

⁴ Nominal value - Background noise 20dB(A)

⁵ Usable storage capacity will be 480 x 2" boxes with installation of MDF-7ID5-PW and additional shelf

⁶ The NFC system is only available in the USA and Canada

⁷ Current warranty offered at time of printing and may be subject to change. US and Canada only

*Manufactured by others