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MDF-DU503VHA-PA, 115V | 220V

18.6 cu.ft. | 528 L

VIP® ECO SMART

ENERGY STAR® Certified Dual Voltage 115V | 220V
Natural Refrigerant -86°C Freezer

ECO natural refrigerants **IC+** inverter controlled **VIP PLUS** vacuum insulation **EZlatch** door handle **electronic door lock**

MDF-DU503VHA-PA

Independently tested and documented, the ENERGY STAR® Certified VIP® ECO SMART delivers the lowest daily energy usage of any ultra-low temperature freezer of its size: 4.99 kWh per day[1]. Purpose-designed for the temperature uniformity and stability required for the life sciences. The dual voltage MDF-DU503VHA-PA runs on either 115V or 220V power.

Performance and Reliability

Next generation engineering harnesses the power of dual voltage inverter compressor technology to yield greater temperature uniformity. Reserve refrigeration power delivers fast temperature recovery following door openings. Performance and reliability is never compromised when it comes to storing your valued products.

Efficient Energy Consumption[1]

This freezer delivers lower energy consumption without compromising performance. The VIP ECO SMART uses 30% less energy than other leading ENERGY STAR listed freezers.

• 0.27 kWh/cu.ft. Daily Energy Consumption
• 4.99 kWh/day, Steady State at -80°C
• 4.06 kWh/day, Steady State at -70°C

Temperature Uniformity
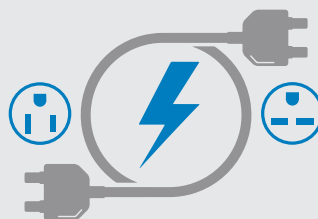• ±3.0°C at -80°C
• ±3.0°C at -70°C

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 to a PC convenient. All performance attributes are displayed and an internal temperature log can be expressed in graphic form over time.

Frost Mitigation

Simplified one-handed operation maintains the integrity of the door seal to assure energy efficiency, resulting in less frost build up and maintenance. Perimeter heater under the gasket allows for gentle warmth reducing ice buildup. The EZlatch handle is the centerpiece of a holistic access and frost mitigation system.

Dual Voltage

No need to install a new outlet thanks to our flexible power option of either 115 or 220 volt standard. Changing to a different voltage is as simple as changing our removable power cord which comes standard with every freezer.

Controlled Freezer Access

Know who entered the freezer and when. Track how long the door was open.

3 Ways to Lock
• Facial recognition
• Keypad
• Proximity card (Optional)*

*Available in the US and Canada only

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VIP®ECO SMART -86°C ULT Upright Freezer

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

Model MDF-DU503VHA-PA shown with three shelves supplied standard. Additional shelves available.

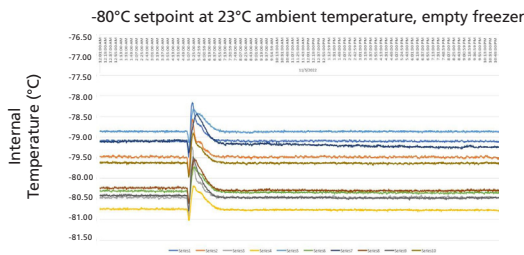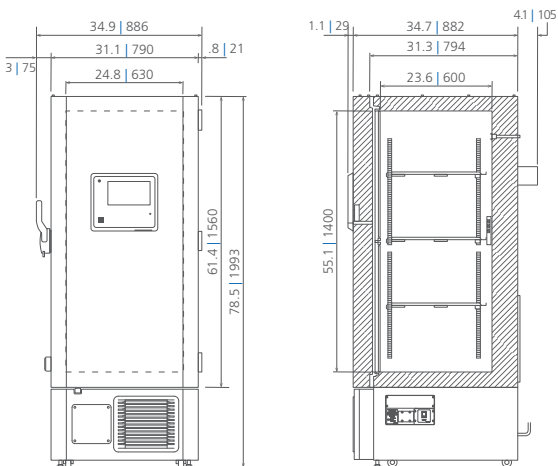## SMART Performance

Inverter driven compressors with SMART control allow for superior uniformity by only running compressors at slower speed under steady state conditions. Proprietary algorithms give the control that allows extremely tight uniformity.

Temperature Uniformity Data:

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

Dimensions

Unit : inch | mm

Model Number		MDF-DU503VHA-PA
External Dimensions (W × D × H) [1]	inches | mm	31.1 × 34.7 × 78.5 | 790 × 882 × 1993
Internal Dimensions (W × D × H)	inches | mm	24.8 × 23.6 × 55.1 | 630 × 600 × 1400
Volume	cu.ft. | liters	18.6 | 528
Net Weight	lbs | kg	531 | 241
2" box and Racks- Capacity	Box | Rack	384 | 16
3" box and Racks- Capacity	Box | Rack	256 | 16
Performance		
Temperature Control Range	°C	-40 to -86
Uniformity [2]	°C	±3.0 (-80 Set point)
Power Consumption	kWh/Day	4.99 (-80°C Steady State)
BTU Nominal	Per Hour	710
Noise Level [3]	dB(A)	46
Ambient Temperature Operating Range	°C	+5 to +30
Control		
Controller		Microprocessor with non-volatile memory, USB connectivity, IoT Ready [4]
Digital Temperature Display		LCD Touchscreen
Controller Security		Screen lock w/ password protection, facial recognition, NFC [5]
Temperature Sensor		RTD
Refrigeration		
Cooling Method		Cold Wall (Synchronized variable speed cascade system)
Compressors	High Stage | Low Stage	750 W Variable | 750 W Variable
Refrigerant Type (Natural Refrigerant)	High Stage | Low Stage	R-290 | R-170
Insulation		Rigid polyurethane foam (PUF) + VIP Plus vacuum insulated panels
Construction		
Exterior Material		Painted steel
Interior Material		Painted steel
Outer Door	qty	1 lock with set of 2 keys and electronic lock (provision for optional pad lock)
Inner Doors	qty	2 insulated stainless steel with latch
Shelves	qty	3 (adjustable)
Shelf Dimensions (W × D)	inches | mm	24.2 × 21 | 615 × 534
Max. Load per Shelf	lbs | kg	110 | 50
Access Ports, Qty, Position, Diameter	qty	3: upper wall (back-up system), bottom left (recorder sensor), bottom right (access) 0.6 in | 17mm
Casters | Leveling Legs	qty	4 | 2
Vacuum Release	qty	1 Auto
Alarms (V= Visual Alarm, B= Buzzer Alarm, R= Remote Alarm, A= Adjustable, L= Logged)		
Power Failure		V-B-R-L
Temperature (High and Low)		V-B-R-L-A
Sensor Failure		V-B-R-L
Door Open		V-B-L
Maintenance Alert		V-L
Remote Alarm Contacts		DC 30V 2A (normally open, normally closed, common)
Electrical		
Power Supply		220V, NEMA 6-15P, 60 Hz 8ft cord length (220V power cord in chamber with standard accessories) / 115V, NEMA 5-15P, 60 Hz 8ft cord length, (standard configuration)
Max Amps	115V | 220V	6 | 8.5
Options		
Backup System		MDF-UB9-PW | MDF-UB9-PW-LN2
Inner Door Kit with Smaller Doors	qty	(4) MDF-5ID4-PW | (5) MDF-5ID5-PW
Proximity Cards	qty	(5) MTR-IC-PW
NFC Module		MTR-NFC-PW
Optional Communication System		
Wireless, Cloud-Based, Automatic Data Management		LabSVIFT™ (Gen3) | LabAlert® | V-SafeRX
4-20mA Output Module		MTR-420MA-PW (Unit Powered) | MTR420MAC* (Unit Powered) | MTR420MAL* (Loop Powered)
Certifications and Warranty		
Certification		QPS Listed and ENERGY STAR
Warranty [6]		5 years parts and labor

[1] Exterior dimensions of cabinet excluding handle, rear stand-off brackets and other external projections.
[2] 3rd party testing lab using 9 temperature points with 75°F ambient temperature.
[3] Nominal value, background noise 20 dB(A).
[4] Unit software ready for future IoT options.
[5] NFC is an optional unlock method for Electronic Lock, accessory part number MTR-NFC-PW and MTR-IC-PW; US and Canada only.
[6] Current warranty offered at time of printing and may be subject to change; US and Canada only.

*Manufactured by others

Specifications are subject to change without notice.
For latest specification information contact PHC Corporation of North America at info@us.phchd.com.
Performance data herein is based on independent testing at time of publication.

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