MDF-DU503VHE-PE



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VIP SMART
Natural refrigerants

Ultra-Low Temperature Freezer 528 L

IC+ inverter compressor | VIP PLUS vacuum insulation | EZlatch door handle | electronic door lock | facial recognition

-86˚C to -40˚C

Cost-saving and environmentally friendly sample storage now upgraded with additional features for improved usability.
The VIP SMART -86°C to -40°C upright freezer, along with conventional Password Protection, now offers Face Recognition, and NFC Authentication (optional), coupled with an Electric Lock for enhanced access control. Energy-saving is also further improved by using natural refrigerants combined with inverter compressors.

Performance and Reliability

Naturally ocurring hydrocarbon (HC) refrigerants have minimal effect on the environment. Combined with inverter technology, these refrigerants also provide more efficiency without compromising cooling performance, ambient tolerance, and recovery speeds following door openings.

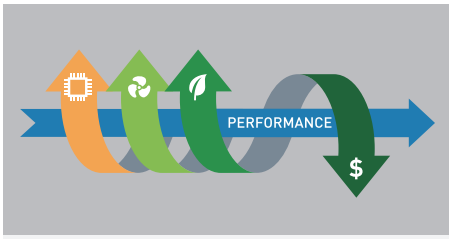
Security control and Monitoring

An eye level, door mounted, 10.1 inches 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.

One of the industry's lowest energy consumption freezer

This freezer delivers lower energy consumption without compromising performance. The VIP SMART uses ~30% less energy compared to most existing models.*

- 5.0 kWh/day, at -80°C
- 4.0 kWh/day, at -70°C



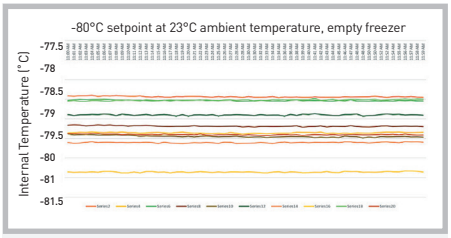
Natural Refrigerants

Natural refrigerants, compressors and integrated electronics combined to lower operating costs resulting in less energy consumption and less heat output. Freezer operation is managed by effectively balancing temperature performance and energy management.



Controlled Freezer Acces

Know who entered the freezer and when. Track how long the door was open.
4 Ways to Lock
- Facial recognition (Optional)
- Keypad
- Proximity card (Optional)
- Key



Smart Performance

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

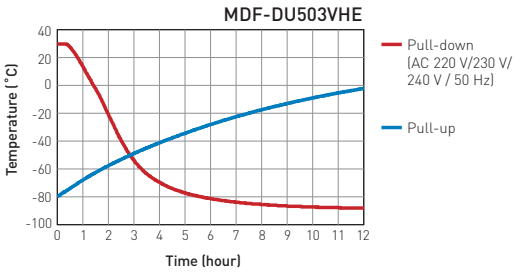
VIP SMART
Natural refrigerants

Ultra-Low Temperature Freezer



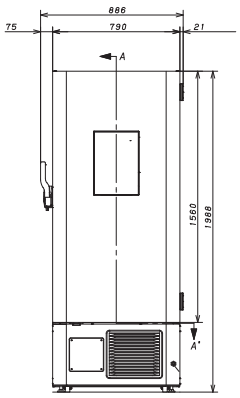
Performance Data

AT30˚C Pull-down & Pull-up Temperature

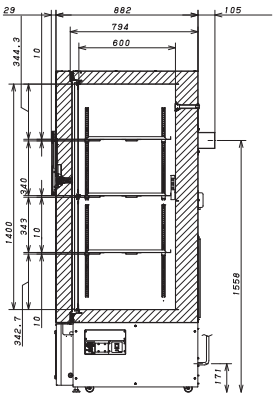


Dimensions

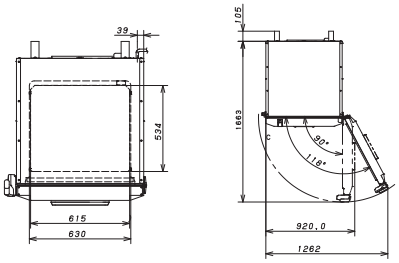
Unit: mm



Front view



Side view



Top view

Model Number		MDF-DU503VHE-PE
Dimensions		
External dimensions (WxDxH) [1]	mm	790 x 882 x 1988
Internal dimensions (WxDxH)	mm	630 x 600 x 1400
Volume	litres	528
Net weight	kg	241
Capacity [2]	2" boxes	384
Performance		
Cooling performance [3]	°C	-86 to -40
Temperature setting range	°C	-90 to -40
Temperature control range [3]	°C	-86 to -40
Control		
Controller		Microcomputer control system
Display		LCD Digital display
Temperature sensor		Platinum resistance (Pt 1,000 Ω)
Refrigeration		
Cooling method		Cascade
Compressors	W	High stage side; Hermetic type, Output: 750 W Low stage side; Hermetic type, Output: 750 W
Refrigerant		HC
Insulation		Rigid polyurethane foamed-in place + Vacuum Insulation Panel
Construction		
Exterior material		Painted Steel
Interior material		Painted Steel
Outer door	qty	1
Outer door lock		Y
Inner doors	qty	2
Shelves	qty	3
Max. load - per shelf	kg	50
Vacuum release port		1 (automatic)
Access port	qty	3
Access port position		3 (back x1, bottom x2)
Access port diameter	Ø mm	30
Casters	qty	4 (2 leveling feet)
Alarms	**(V = Visual Alarm, B = Buzzer Alarm, M = Message, R = Remote Alarm)**	
Power failure		V-B-M-R
High temperature		V-B-M-R
Low temperature		V-B-M-R
Filter		V-M
Door open		V-B-M
Electrical and Noise Level		
Power Supply	V	220/230/240, 220/230
Frequency	Hz	50/60
Noise Level [4]	dB(A)	48
Options		
Tray kit		MDF-50XST-PW
Small inner door kit	set of 5	MDF-5ID5-PW [5]
	set of 4	MDF-5ID4-PW
Face recognition kit		MTR-FRC-PW
NFC System [7]		NFC reader: MTR-NFC-PW
	set of 5	IC Cards: MTR-IC-PW
Liquid CO_2 back-up		MDF-UB9-PW
Temperature recorders -Circular type		MTR-G85C-PE [6] Chart paper: RP-G85-PW / Ink pen: PG-R-PW
Temperature recorders -Continuous strip type		MTR-85H-PW [6] Chart paper: RP-85-PW / Ink pen: DF-38FP-PW Recorder housing: MDF-S3085-PW
Recorder sensor cover		MTR-DU700SF-PW
OPC UA Interface Board		MTR-OPC1-PW [8]
Mod-bus Interface Board		MTR-MODB1-PW [8]
Quality Management System		
Certification		ISO9001

Notes:
1) Exterior dimensions of main cabinet only, excluding handle and other external projections.
2) Usable storage capacity of 2" boxes, in the original configuration of the freezer.
3) Air temperature measured at freezer centre, ambient temperature 30˚C, no load.
4) Nominal value - Background noise 20 dB[A].
5) Installation of small inner door kit may effect usable storage capacity.
6) Requires sensor cover MTR-DU700SF-PW. handle and other external projections.
7) The NFC System is only available in EEA member countries, UK, Switzerland, and Turkey.
8) Only available in EU & UK, EFTA countries, Switzerland and Turkey

• Appearance and specifications are subject to change without notice.
Caution: PHC Corporation guarantees this product under certain warranty conditions. However, please note that PHC Corporation shall not be responsible for any loss or damage to the contents of the product.

* Based upon publicly available data (setpoint -80C) in marketing materials from a substantial number of leading ULT freezer suppliers. Verified on April 7th, 2025

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