

Ultra-low Temperature Freezer | MDF-DU502VH VIP ECO

Natural Refrigerants and Inverter Technology

Naturally occurring hydrocarbon [HC] refrigerants have minimal effect on the environment and are compliant with environmental legislation for climate control. Combined with inverter technology.

Efficient Sample Storage

New cabinet design combines an insulated outer door with superior storage efficiency and an inner door designed for uniform temperature distribution.

Intelligent Interface

The newly developed ergonomic "EZlatch" door handle makes access to stored samples even easier. Intuitive and intelligible large colour LCD touchpanel is provided.

Model Number	MDF-DU502VH	
External dimensions (W x D x H) ¹⁾	mm	790 x 882 x 1993
Internal dimensions (W x D x H)	mm	630 x 600 x 1400
Volume	litres	528
Net weight	kg	246
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	Microprocessor, non-volatile memory	
Display	LCD Touchpanel	
Temperature sensor	Pt-1000	
Refrigeration		
Refrigeration system	Cascade	
Compressors	W	2 x 750
Refrigerant	HC	
Insulation material	PUF / VIP PLUS	
Insulation thickness	mm	80
Construction		
Exterior material	Painted Steel	
Interior material	Painted Steel	
Outer door	qty	1
Outer door lock	Y	
Inner doors	qty	2 pieces
Shelves	qty	3 (stainless steel)
Max. load - per shelf	kg	50
Max. load - total	kg	415 ⁴⁾
Vacuum release port	2 (1 automatic, 1 manual)	
Access port	qty	3
Access port position	3 locations [rear x 1, bottom x 2]	
Access port diameter	∅ mm	17
Casters	qty	4 [2 leveling feet]
Alarms (V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm)		
Power failure	V-B-R	
High temperature	V-B-R	
Low temperature	V-B-R	
Filter	V	
Door open	V-B	
Electrical and Noise Level		
Power supply	V	PA: 220 / PE: 220/230/240
Frequency	Hz	PA: 60 / PE: 50
Power Consumption [230V/50Hz] SV-80°C	kWh/day	AT23°C: 6.7 AT30°C: 7.8
Noise level ⁵⁾	dB (A)	52
Options		
Small inner door kit	set of 5	MDF-5ID5-PW ⁴⁾
	set of 4	MDF-5ID4-PW
Liquid CO ₂ back-up	MDF-UB7-PW	
Inventory rack	IR-224U-PW, IR-316U-PW	
Temperature recorders	- Circular type	MTR-G85C-PE ⁷⁾ - Chart paper: RP-G85-PW - Ink pen: PG-R-PW
	- Continuous strip type	MTR-85H-PW ⁷⁾ - Chart paper: RP-85-PW - Ink pen: DF-38FP-PW - Recorder housing: MDF-S3085-PW
Optional Communication Systems		
Digital interface [RS232C/RS485] ⁸⁾	MTR-480-PW	
Ethernet interface [LAN] ⁸⁾	MTR-L03-PW	
Quality Management System		
Certification	ISO 9001	

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

²⁾ Usable storage capacity of 2" boxes when the original 3 trays installed.

³⁾ Air temperature measured at freezer centre, ambient temperature 30°C, no load.

⁴⁾ Max. load allowed for chamber interior — total shelves (3) and chamber bottom, excluding load on casters mounted on product.

⁵⁾ Nominal value - Background noise 20 dB(A).

⁶⁾ Installation of small inner door kit may effect usable storage capacity.

⁷⁾ Requires sensor cover MTR-DU700SF-PW.

⁸⁾ Only for MTR-5000 (data acquisition system) users.

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 stored in the product.

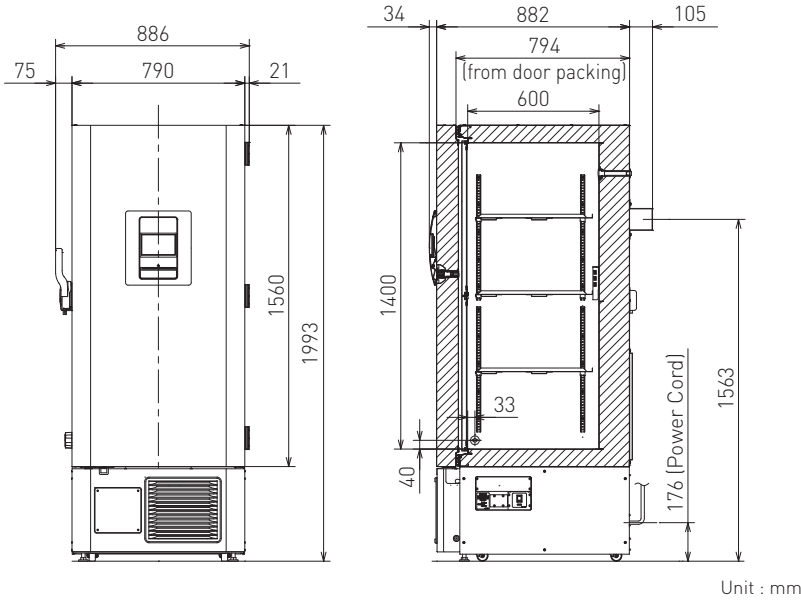


Reliable control-ability and data log function

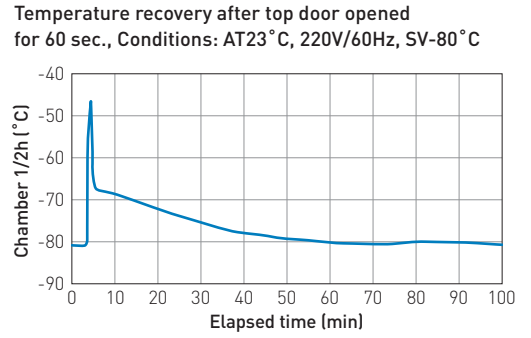
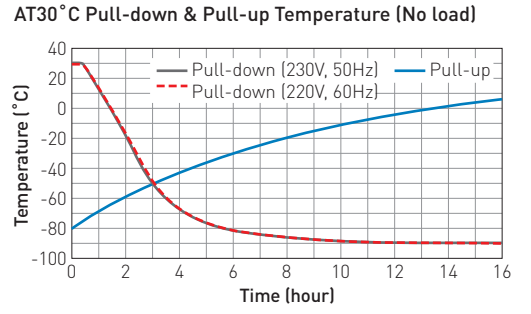
Large colour LCD touchpanel is accurately controlled even with a gloved hand, while the USB memory port makes transferring logged data of product's operational status to a PC convenient.



Dimensions

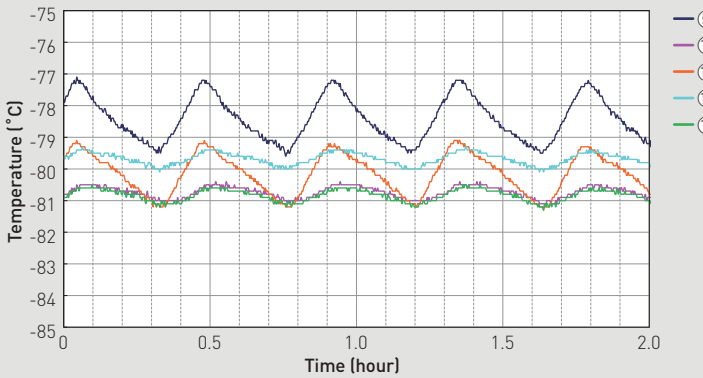


Performance Data

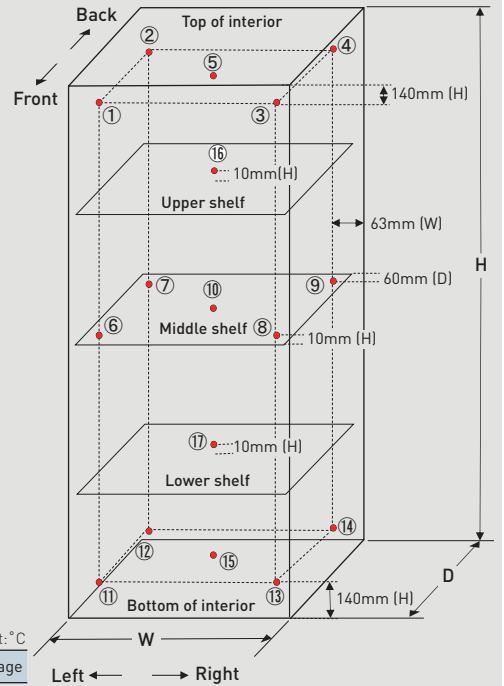


Temperature Stability

Condition: SV-80°C, AT23°C, 230V/50Hz, no load



Temperature uniformity - 17 points measuring



Internal Temperature Uniformity (Reference Data)

Distribution data

Temperature of the cycle in each area (SV-80°C, air temperature)

Conditions

Load: Unloaded

Ambient temperature 23°C, 230V/50Hz

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	Average	
Maximum	-77.0	-77.2	-77.4	-77.3	-77.2	-79.8	-80.3	-79.7	-80.2	-80.4	-78.7	-79.1	-79.2	-79.2	-79.1	-79.3	-80.5	—
Minimum	-79.6	-80.1	-80.0	-79.9	-79.5	-80.9	-81.6	-81.0	-81.7	-81.1	-80.6	-81.2	-81.2	-81.5	-81.3	-80.1	-81.3	—
Middle of cycle	-78.3	-78.7	-78.7	-78.6	-78.4	-80.4	-81.0	-80.4	-81.0	-80.8	-79.7	-80.2	-80.2	-80.4	-80.2	-79.7	-80.9	-79.8

(Note) Disclaimer

- Specification may change without notice.
- The performance data was measured by inhouse test data of PHC.
- The Performance data is a reference data and not guaranteed.
- Not all the products available in all countries.