

Ultra-low Temperature Freezer | MDF-DU502VX **TwinGuard**

Ultimate Sample Protection

New optimised Dual Cooling System "TwinGuard" comprised of independent dual cooling circuits realises -86 °C and one side of the cooling circuits maintains chamber temperature at -70 °C.

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-DU502VX	
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	MDF-DU502VXC-PA: 294 kg MDF-DU502VX-PE/PB: 285 kg
Capacity ²⁾	2" boxes	384
Performance		
Cooling performance ³⁾	°C	-86
Temperature setting range	°C	-90 to -50
Temperature control range ³⁾	°C	-86 to -50
Control		
Controller	Microprocessor, non-volatile memory	
Display	LCD Touchpanel	
Temperature sensor	Pt-1000	
Refrigeration		
Refrigeration system	Independent Dual-Cooling	
Compressors	W	2 x 1100
Refrigerant	HFC mixed	
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	Filterless design	
Door open	V-B	
Electrical and Noise Level		
Power supply	V	230 / 240
Frequency	Hz	50
Power Consumption (230V/50Hz) SV-80°C	kWh/day	AT23°C: 16.54 [Normal] / 15.25 [ECO] AT30°C: 18.43 [Normal] / 18.42 [ECO]
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	

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).

⁴⁾ 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

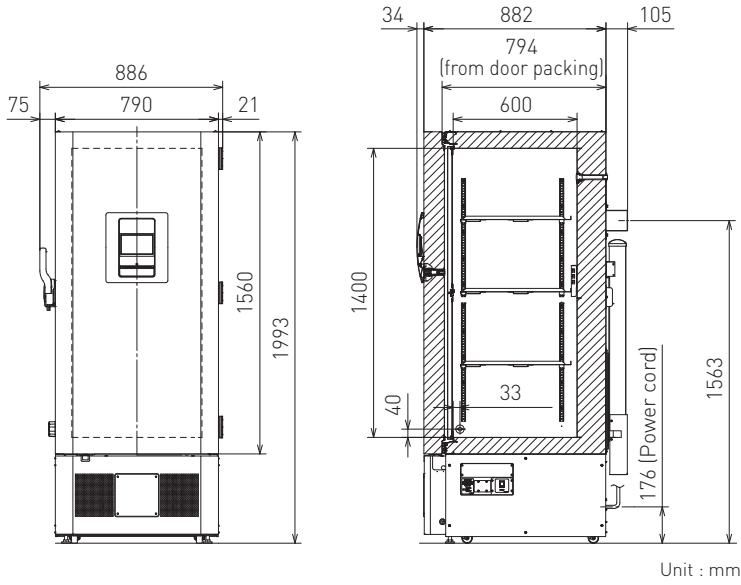
Large colour LCD touchpanel is accurately controlled even with a gloved hand, while the USB memory port makes transferring logged data of product's operational status to a PC convenient.



Shown with small inner door kit MDF-5ID4

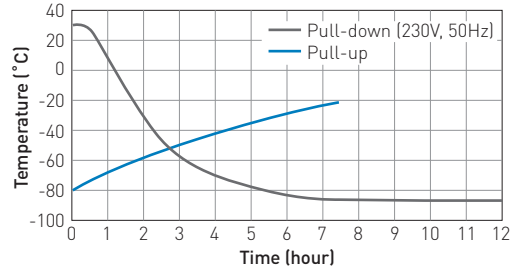


Dimensions

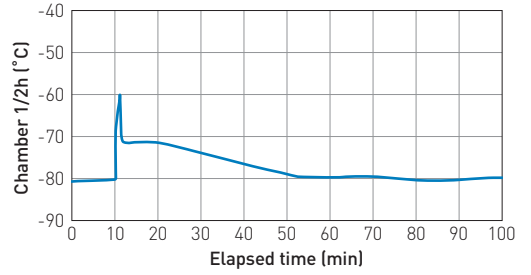


Performance Data

AT30°C Pull-down & Pull-up Temperature (No load)

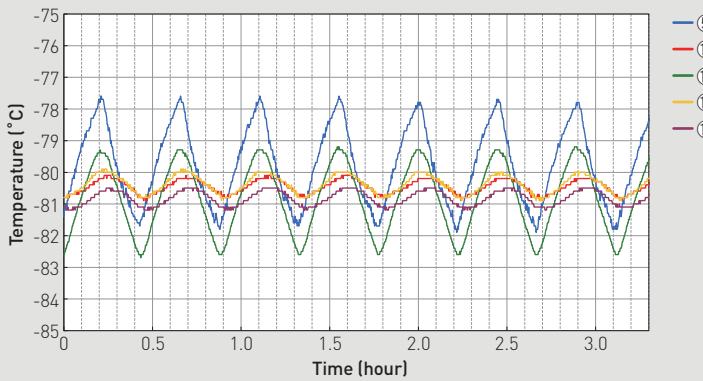


AT30°C Pull-down & Pull-up Temperature (No load)

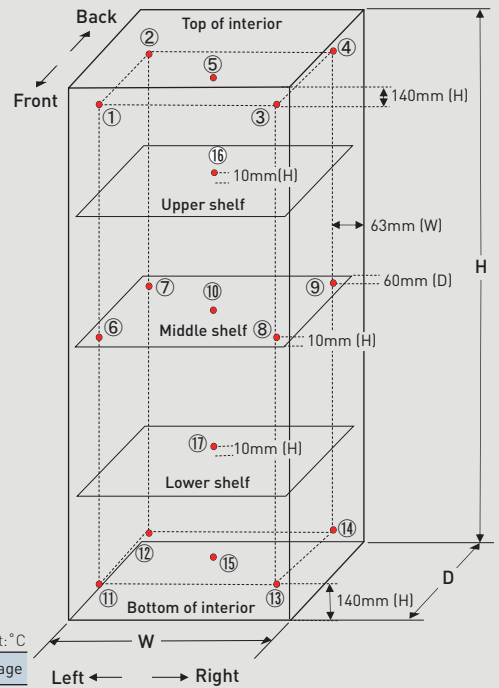


Temperature Stability

Condition: SV-80°C, AT23°C Normal-mode 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 Normal-mode 230V/50Hz

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	Average	
Maximum	-76.3	-77.9	-76.8	-78.3	-77.6	-79.5	-80.0	-79.6	-80.1	-80.1	-78.2	-78.8	-78.2	-79.0	-79.3	-79.9	-80.5	—
Minimum	-80.6	-82.1	-80.8	-82.4	-81.8	-81.0	-82.1	-81.0	-82.3	-80.9	-81.5	-82.4	-81.3	-82.3	-82.7	-80.9	-81.2	—
Middle of cycle	-78.5	-80.0	-78.8	-80.4	-79.7	-80.3	-81.1	-80.3	-81.2	-80.5	-79.9	-80.6	-79.8	-80.7	-81.0	-80.4	-80.9	-80.2

(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.