PHCbi

DUAL cooling system

VIP PLUS vacuum insulation

EZlatch door handle

Twin*Guard*

-86°C Ultra-Low Temperature Freezer

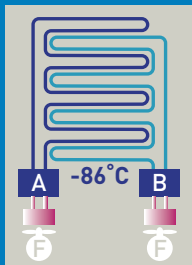### 528 L / 729 L

MDF-DU702VX

MDF-DU502VX

Ultra-low temperature storage solution for valuable samples. Twin*Guard* equipped with new Dual Cooling System.

New Twin*Guard* adopts optimised Dual Cooling System and new cabinet design with enhanced insulation performance and storage capacity.
Superior cooling performance focused on reliability and safety suitable even for mass sample storage like biobank use.

Ultimate Sample Protection

New optimised Dual Cooling System "Twin*Guard*" comprised of independent dual cooling circuits realises -86°C and one side of the cooling circuits maintains chamber temperature at -70°C.
The freezer can minimise risk of compromising valuable samples.

-86°C
A B
F F

Efficient Sample Storage

New cabinet design combines an insulated outer door with superior storage efficiency and an inner door designed for uniform temperature distribution. This improves storage efficiency approximately 10 % (576 pcs of 2-inch Cryo boxes can be stored in the MDF-DU702VX) while maintaining the same footprint as conventional models.

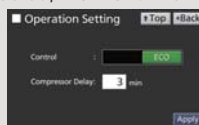576 pcs of 2 inch boxes

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.

ECO operation and energy saving

Model Number	Operation mode	Energy-saving rate*1	Conventional Model No.
MDF-DU502VX	Normal	18%	MDF-U500VX
	ECO	22%	
MDF-DU702VX	Normal	19%	MDF-U700VX
	ECO	22%	

Improved insulating performance cuts power consumption approximately 22 %*2 compared to conventional models when the ECO mode is selected, thanks to the effective combination of VIP Plus insulation and the next-generation cabinet.

Operation Setting ↑Top ←Back
Control ECO
Compressor Delay: 3 min
Apply

*1 Power consumption per 2 inch box.
Power source: 230 V 50 Hz, AT 23°C
*2 Compared to conventional models. Power consumption per 2 inch box. Power source: 230 V 50 Hz, AT 23°C

Flexible shelf layout

The inner space offers flexible storage, allowing either three or four shelves*3 and chamber bottom to be used. Also, an inner door with four or five small doors (optional) is available.

(5 pcs)

*3 Three shelves equipped as standard.

Reliable controllability and data log function

-80°C

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

Life Science Innovator Since 1966

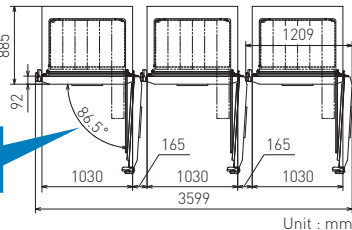# Twin*Guard* -86°C Ultra-Low Temperature Freezer

Approximately 110 mm*[1] installation width can be reduced when installing 3 units in line compared to conventional units.

The "Chamfer-design" body front features a chamfered edge for reduced installation space when compared to conventional models in a multiple unit installation. The design is especially suitable for a biobank or similar application.

*[1] Comparison of MDF-DU702VX and the conventional MDF-U700VX product. Comparison condition: Minimum width required when installing 3 units in line. This prevents outer doors from contacting each other for door openings/closings.

Opening the inner door to 90 degrees lets storage racks be removed.

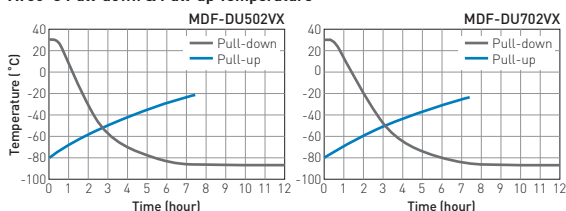885
92
88.5°
1209
165
165
1030
1030
1030
3599
Unit : mm

User friendly for daily operation with newly developed vacuum release port and fivefold gasket

Newly developed automatic vacuum release port and fivefold gasket are adopted. Automatic release of negative pressure and reduced frost realise user friendliness even for frequent door opening.
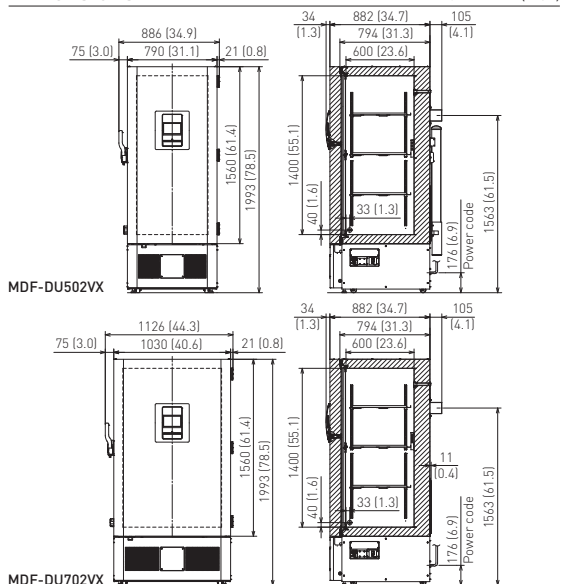
Performance Data

AT30°C Pull-down & Pull-up Temperature

MDF-DU502VX
— Pull-down
— Pull-up

MDF-DU702VX
— Pull-down
— Pull-up

Temperature (°C)
Time (hour)

Dimensions
Unit : mm (inch)

MDF-DU502VX
886 [34.9]
790 [31.1]
75 [3.0]
21 [0.8]
1560 [61.4]
1993 [78.5]
34 [1.3]
882 [34.7]
794 [31.3]
600 [23.6]
105 [4.1]
1400 [55.1]
40 [1.6]
33 [1.3]
176 [6.9]
1563 [61.5]
Power code

MDF-DU702VX
1126 [44.3]
1030 [40.6]
75 [3.0]
21 [0.8]
1560 [61.4]
1993 [78.5]
34 [1.3]
882 [34.7]
794 [31.3]
600 [23.6]
105 [4.1]
1400 [55.1]
40 [1.6]
33 [1.3]
11 [0.4]
176 [6.9]
1563 [61.5]
Power code

Model Number		MDF-DU502VX-PE	MDF-DU502VX-PB MDF-DU502VXC-PA	MDF-DU702VX-PE	MDF-DU702VX-PB MDF-DU702VXC-PA
External dimensions (W x D x H) [1]	mm	790 x 882 x 1993		1030 x 882 x 1993	
Internal dimensions (W x D x H)	mm	630 x 600 x 1400		870 x 600 x 1400	
Volume	litres	528		729	
Net weight	kg	285	285 / 294	328	328 / 338
Capacity [2]	2" boxes	384		576	
Performance					
Cooling performance [3]	°C	-86			
Temperature setting range	°C	-50 to -90			
Temperature control range [3]	°C	-50 to -86			
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]		515 [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	Ø 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		MDF-DU502VX-PE	MDF-DU502VX-PB MDF-DU502VXC-PA	MDF-DU702VX-PE	MDF-DU702VX-PB MDF-DU702VXC-PA
Power supply	V	230 / 240	220	230 / 240	220
Frequency	Hz	50	50 (VX) / 60 (VXC)	50	50 (VX) / 60 (VXC)
Noise level [5]	dB (A)	52			
Options					
Small inner door kit	set of 5	MDF-5ID5-PW [6]		MDF-7ID5-PW [6]	
	set of 4	MDF-5ID4-PW		MDF-7ID4-PW	
Liquid CO₂ 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			
Temperature recorders – 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).
[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 of the product.

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