



## -30°C Biomedical ECO Freezers with Natural Refrigerants



369 L / 504 L

### Stable -30°C uniform environment with extensive storage possibilities

Both units provide environmental savings and flexibility while maintaining the quality of the samples during preservation. Such flexibility includes height-adjustable shelf trays and separate top and bottom doors that prevent cold air leakage.

#### Natural Refrigerants and Inverter Technology

Hydrocarbon [HC] refrigerants have minimal effect on the environment and are compliant with environmental legislation for climate control. Combined with inverter technology, these refrigerants also provide more efficient cooling without compromising cooling performance, ambient tolerance and recovery speeds following door openings.

#### Safe & Secure Sample Storage

To securely preserve the valuable samples, multiple safety features include 2 separate doors to reduce cold air leakage when handling samples and abnormal temperature alarms (high/low) to prevent samples being exposed to temperature variations.

#### Height-adjustable Shelf Trays

Both units feature fully height-adjustable shelf trays, accommodating chamber containers of various sizes. Model MDF-MU339HL features a shelf width of just 447 mm, and Model MDF-MU539HL's shelf width is 624 mm.



#### Energy-efficient Performance

Natural refrigerants, compressors and integrated electronics combine to lower operating costs by up to 28%\*. Freezer operation is managed by effectively balancing temperature performance and energy management.

\* Compared to conventional models.  
Power source: 220V/230V/240V 50Hz, Ambient temperature: 30°C



#### Versatile Alarm Function

An alarm for high/low temperatures and an error code display with a self-diagnostic function inform users of any abnormalities such as power failures for prompt actions that avoid damaging valuable samples. In addition to a standard door lock, a latch with a padlock is also available.

\* Storage containers are available as an option.  
Max. capacity is 6 containers per chamber, 12 in total.



#### Easy Disposal of Defrosting Water

Manual defrosting becomes an easy task with the drain hose that is attached to the main unit (hose usually stowed away when not in use).

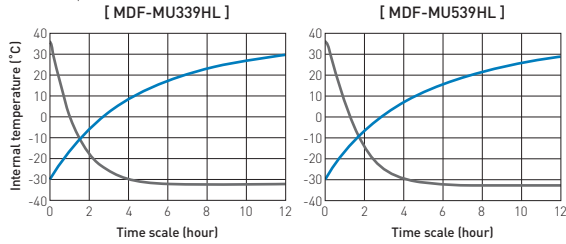
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## Performance Data

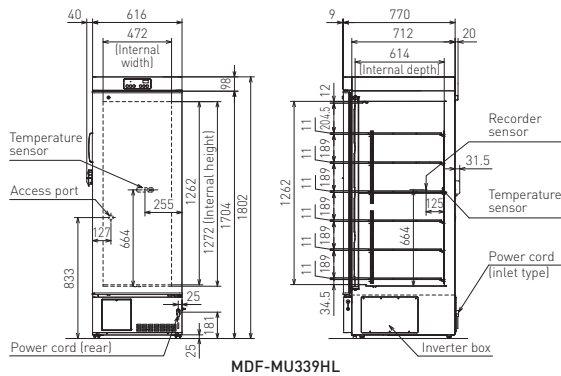
### AT35°C Pull-down & Pull-up Temperature (No load)<sup>2)</sup>

— Pull-down (220/230/240 V, 50 Hz)  
— Pull-up

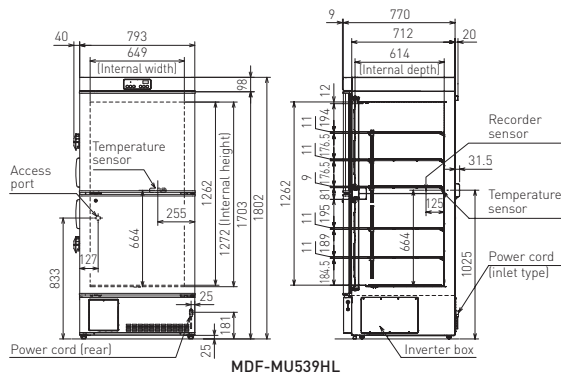


## Dimensions

Unit: mm



MDF-MU339HL



MDF-MU539HL



(220/230/240 V, 50 Hz)



Preservation Equipment, Experimental Environment Equipment, Dispensary Equipment, Culturing Equipment and Drying & Sterilising Equipment for General Laboratory use  
The management of the design, development, production and servicing of the above.  
PHC Corporation, Biomedical Division  
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PHC Corporation Biomedical Division is certified for:  
**Environmental management system: ISO14001**

Model Number	MDF-MU339HL-PE	MDF-MU339HL-PA	MDF-MU539HL-PE	MDF-MU539HL-PA
External dimensions (W x D x H) <sup>1)</sup>	mm 616 x 770 x 1802		793 x 770 x 1802	
Internal dimensions (W x D x H)	mm 472 x 614 x 1262		649 x 614 x 1262	
Volume	litres 369		504	
Net weight	kg 122		144	
<b>Performance</b>				
Cooling performance <sup>2)</sup>	°C		-30	
Temperature setting range	°C		-35 to -18	
Temperature control range	°C		-30 to -20	
<b>Control</b>				
Controller	Microprocessor, non-volatile memory			
Display	LED			
Temperature sensor	Thermistor			
<b>Refrigeration</b>				
Compressor	W	400		
Refrigerant	HC			
Insulation material	PUF			
Insulation thickness	mm	70		
<b>Construction</b>				
Exterior material	Painted Steel			
Interior material	Painted Steel			
Outer door	qty	1	2	
Outer door lock	Yes			
Shelves	Dimensions	mm W447 x D510		W624 x D510
Max. load - per shelf	kg	30		
Access port	qty	1		
Access port position	Back			
Access port diameter	∅ mm	30		
Casters	qty	4 [2 levelling feet]		
<b>Accessories</b>				
Accessories	qty	1 Key set / 1 Defrost spatula		
<b>Alarms</b> (V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm)				
Power failure			V-B-R	
High temperature			V-B-R	
Low temperature			V-B-R	
<b>Electrical and Noise Level</b>				
Power supply	V	220/230/240	115	220/230/240
Frequency	Hz	50	60	50
Noise level <sup>3)</sup>	dB [A]	42		
<b>Options</b>				
Temperature recorders	- Circular type	MTR-G85C-PE/MTR-G85A-PA - Chart paper: RP-G85-PW - Ink pen: PG-R-PW - Recorder housing: MPR-S7-PW		
	- Continuous strip type	MTR-4015LH-PE/MTR-4015LH-PA - Chart paper: RP-40-PW - Recorder housing: MPR-S30-PW		
Storage Container	Inner dimensions	mm	W420 x D552 x H157	MDF-05SC-PW [2 pcs/set]
				MDF-03SC-PW [2 pcs/set]
<b>Optional Communication Systems</b>				
Digital interface (RS232C/RS485) <sup>4)</sup>	MTR-480-PW			
Ethernet interface (LAN) <sup>4)</sup>	MTR-L03-PW			
<b>Quality Management System</b>				
Certification	ISO 9001			

<sup>1)</sup> External dimensions of main cabinet only, excluding handles and other external projections.

<sup>2)</sup> Air temperature measured at freezer centre, ambient temperature 35°C, no load.

<sup>3)</sup> Nominal value - Background noise 20 dB[A]

<sup>4)</sup> Only for MTR-5000 (data acquisition system) users.

• 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.

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