PHCbi

A Member of PHC Group

Partnering
Life Sciences
Development

PHCbi Biomedical products are designed to meet the demands of the life science industries by providing reliability, accuracy, and usability to facilitate cutting-edge research and preservation of precious samples.

PHC Corporation, Biomedical Division

Life Science
Innovator
Since 1966

PHCbi

"PHCbi" is a new brand for our Biomedical business that has globally supported cutting-edge research and healthcare for over 50 years.

Since 1966, when we first launched pharmaceutical refrigerators, we aimed to support cutting-edge research in life sciences. We have provided equipment and services required for sample preservation, bacterial and cell culture as well as maintenance of cleanroom environments.

Life Science Innovator Since 1966

1966	1977	1991	2008	2009
SAR-130M Pharmaceutical Refrigerator	**MDF-390AT** -80°C Ultra Low Temperature Freezer developed	**MDF-1155ATN** World's Lowest Temperature -152°C Freezer developed	**MDF-U400VX** -85°C Dual Cooling System Freezer developed	**MCO-19AICUVH** World's First H_2O_2 / Hydrogen Peroxide Chamber decontamination function equipped

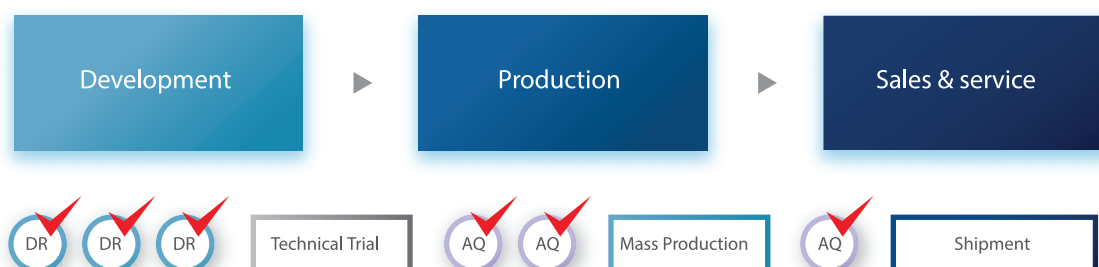| 2012	2014	2017	2019	2023
MDF-DU700VH Energy-saving HFC-free -86°C Ultra Low Temperature Freezer	**MCO-170AICUVH** Enhanced efficient Cleaning and storage Integrated Tray Catches Structure CO_2 Incubator	**MDF-DU702VX** High Efficiency Insulation/Efficient sample storage and more efficient Dual Cooling System	**MPR-N450FH** Energy-saving HFC-free Pharmaceutical Refrigerator with Freezer	**MDF-DU703VH** Energy-saving HFC-free ULT Freezer with large Touchscreen and Access Control.

Commitment to Quality

PHCbi MONOZUKURI* Way

The most important points that customers demand of our products are quality and reliability. At our factories, we have established the "MONOZUKURI Way" as a theme of action. We carry out various initiatives to improve quality while working to pass on the legacy of traditional Japanese manufacturing technology in a multi-facetted fashion. *[MONOZUKURI] is the Japanese word for [Craftsmanship]

Our Quality Management System

| Development | ▶ | Production | ▶ | Sales & service |

DR DR DR   Technical Trial   AQ AQ   Mass Production   AQ   Shipment

In our quality management and development process (Quality Management System), we establish a number of checkpoints in the value chain. Staff with various occupational abilities carry out stringent evaluation and improvement of products from the customer's per spective. This is the system that creates our high level of quality.

Japan Factory (Gunma)

Established in 1959 as the Tokyo Manufacturing Site of Sanyo Electric Co., Ltd., this is our core factory which has the Product Technology Development/Design Department, Quality Assurance Department, and Production Department.

As of April 2023, Over 500 PHC employees engaged in the development, quality assurance, and production of products of PHCbi. Within the facility, we have many environmental testing laboratories, and these are used for stringent product screening with the aim of studying technology development and maintaining quality.

In addition, at the "MONOZUKURI-Dojo (Training)," the purpose is to pass down our legacy for traditional technology. We carry out various kinds of training to improve skills such as brazing capillary tubes of Ultra-low Temperature Freezers, etc., which require a high level of skill.

Application

*Blood must be preserved in Blood Bank Refrigerator.

Preservation

Client	Universities, private companies, laboratories/research institutions		Hospitals, universities, private companies, blood centres	
Typical needs	Preservation of cells, microbes, specimens	Preservation of reagents	Drugs, blood *, reagents	
Storage temperature	-152℃/-150℃, -86℃ to -40℃/-50℃	-40℃/-30℃ to -20℃/-15℃	4℃, 2℃ to 14℃/23℃, 2℃ to 14℃/-30℃ to -20℃	
	Ultra-low temperature freezers	Biomedical Freezers	Pharmaceutical Refrigerators	Blood Bank Refrigerators
Pages	5 — 10	11 — 12	13 — 16	

Incubation

Client	Universities, private companies, hospitals	Universities, private companies, hospitals, waterworks (water quality inspection)	Universities, private companies, agricultural experiment stations
Typical needs	Animal cell incubation (temperature, humidity, gas density)	Incubation of microbes (temperature)	Incubation of plants (temperature, illuminance, humidity)
	CO_2 Incubators	Cooled Incubators	Climate Chambers
Pages	17 — 20	21	22

Function icons / Logos
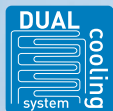
Dual Cooling System
Dual Cooling System offers ultimate sample protection.

EZlatch Easy Acces Door Handle
The EZlatch makes access to stored samples even easier.

Inverter Compressors
Inverter Compressors maximise cooling performance and reduce energy consumption.

OLED Control Panel
The OLED control panel displays various operational functions such as temperature transition, maximum and minimum control temperature, and error messages.

VIP PLUS vacuum insulation
VIP PLUS vacuum insulation maximises storage capacity.

Natural Refrigerants
Naturally occurring hydrocarbon (HC) refrigerants improve performance and reduce running costs.

A full-colour LCD Touch Panel
Various functions such as logging the temperature history, and setting up passwords and alarms can all be managed on the screen.

Electronic Door Lock
Know who entered the freezer and when. Track how long the door was open.

Integrated Tray Catches
Significantly minimise cleaning time and improves productivity.

A full-colour LCD Touch Panel
Various functions such as logging the temperature history, and setting up passwords and alarms can all be managed on the screen.

inCu-saFe ® germicidal interior
inCu-saFe ® germicidal interior prevents contamination.

Dual IR CO$_2$ Sensor
The single beam, dual detector IR CO$_2$ Sensor offers continuous calibration for excellent control, accuracy and stability.

Dual Heat Sterilisation
Two independent heaters enable cell culturing to continue uninterrupted during sterilization.

Zirconia O$_2$ Sensor
The unique, solid state Zirconia O$_2$ sensor delivers precise oxygen control.

H$_2$O$_2$ Decontamination
The unique H$_2$O$_2$ decontamination system delivers fast and validatable decontamination.

SafeCell UV Lamp
The SafeCell UV lamp prevents contamination.

IR CO$_2$ Sensor
The IR CO$_2$ Sensor offers accurate and reliable CO$_2$ measurement.

OLED Control Panel
The OLED control panel displays various operational functions such as temperature transition, maximum and minimum control temperature, and error messages.

Twin Guard −86℃

The most secure ultra-low temperature freezers for the storage of high value samples

MDF-DU302VX | 360 L

MDF-DU502VX | 528 L
MDF-DU502VXC

MDF-DU702VX | 729 L
MDF-DU702VXC

Model No.	MDF-DU302VX	MDF-DU502VX	MDF-DU502VXC	MDF-DU702VX	MDF-DU702VXC
Temperature Control Range	−86℃ to −50℃				
Effective Capacity	360 litres	528 litres		729 litres	
External Dimensions (W x D x H)*	670 x 882 x 1840 mm	790 x 882 x 1993 mm		1030 x 882 x 1993 mm	
Internal Dimensions (W x D x H)	490 x 600 x 1230 mm	630 x 600 x 1400 mm		870 x 600 x 1400 mm	
Net Weight (Approx.)	225 kg	285 kg	294 kg	328 kg	338 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MDF-DC500VX | 575 L

MDF-DC700VX | 715 L
MDF-DC700VXC

Model No.	MDF-DC500VX	MDF-DC700VX	MDF-DC700VXC
Temperature Control Range	−86℃ to −50℃		
Effective Capacity	575 litres	715 litres	
External Dimensions (W x D x H)*	2010 x 845 x 1070 mm	2300 x 845 x 1070 mm	2300 x 955 x 1070 mm
Internal Dimensions (W x D x H)	1190 x 640 x 756 mm	1480 x 640 x 756 mm	
Net Weight (Approx.)	328 kg	358 kg	366 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.
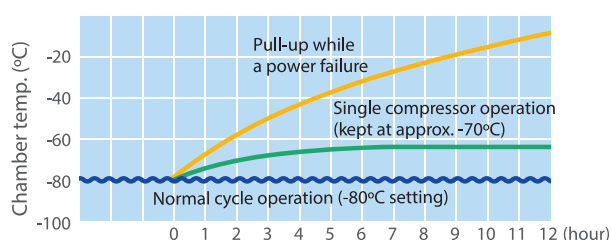
DUAL cooling system

TwinGuard

Ultimate Sample Protection

Unlike conventional ultra low freezers, TwinGuard ULT freezers have two independent refrigeration systems to provide the highest levels of sample security. Should one system unexpectedly fail, the other will maintain a temperature in the -70ºC range ensuring that the integrity of irreplaceable and potentially life-saving samples are not put at risk.

Safe and Secure Extra-Large Capacity Ultra-Low Freezer with Dual Cooling System

Secure storage with new dual cooling system

The Dual Cooling   system is newly designated to securely store valuable biological samples. It consists of two individual compressors to provide a reliable -86ºC ultra-low temperature environment. Should unexpected failure occur in one cooling circuit, the other will maintain at least -70ºC.

Chamber temp. (°C)

-20
-40
-60
-80
-100

Pull-up while a power failure

Single compressor operation (kept at approx. -70ºC)

Normal cycle operation (-80ºC setting)
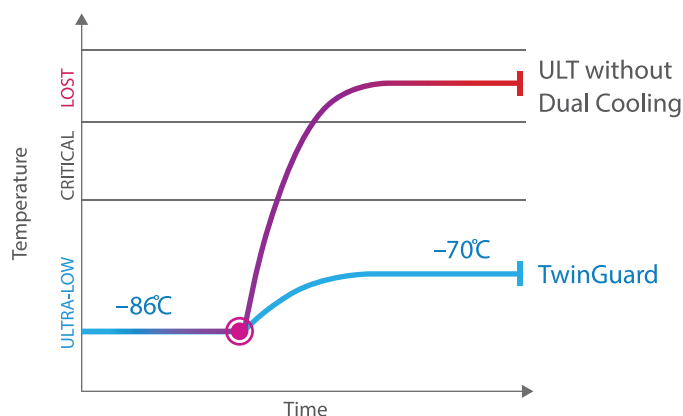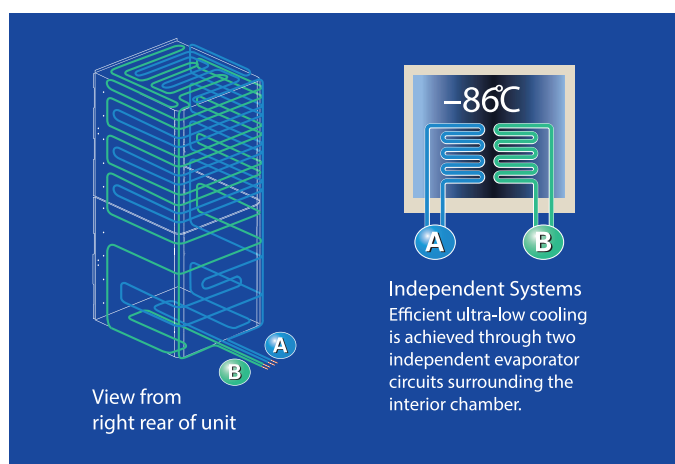
0 1 2 3 4 5 6 7 8 9 10 11 12 (hour)

*Any unexpected failure on either of the single compressor will be alerted
*The data is a measured (AT23ºC, 230V/50Hz, no load) Actual power consumption will vary
 depending on ambient conditions, settings and local voltage.

−86℃

A   B

View from right rear of unit

Independent Systems
Efficient ultra-low cooling is achieved through two independent evaporator circuits surrounding the interior chamber.

When sample security and peace of mind are of paramount importance, put your trust in TwinGuard ultra low freezers.

- An optimal Dual Cooling System provides an unparallelled level of safety and added peace of mind through the use of two independent refrigeration systems.
- ECO mode overlaps refrigeration cycles to reduce energy consumption.
- Advanced space-saving VIP PLUS technology (compared to our conventional models).
- Graphical LCD display with data monitoring and data log exported by USB.
- Available in Upright and Chest models.

Temperature

LOST

CRITICAL

ULTRA-LOW

ULT without Dual Cooling

−70℃ TwinGuard

−86℃

Time

EZlatch door handle
EZlatch

VIP PLUS vacuum insulation
VIP Plus

EZlatch door handle newly developed based on human engineering

EZlatch is designed for secure door opening/closing with minimum strength as the name suggests and makes access to stored samples easier.

Innovative V.I.P.* Technology

*Vacuum Insulation Panel

VIP is the innovative insulation technology developed by PHC. VIP series contain densely packed, open cell foam insulation under the vacuum panel. This configuration dramatically enhanced the insulation capability of the freezer while reducing the wall thickness from 140mm to 70mm, and achieved nearly 30% more storage capacity than conventional insulated freezers. The VIP Plus achieved 6 times stronger thermal resistance with more rigid foam polyurethane while keeping the same thickness of 70mm.

Barrier film bag
VIP PLUS
Steel
Polyurethane foam

Exterior
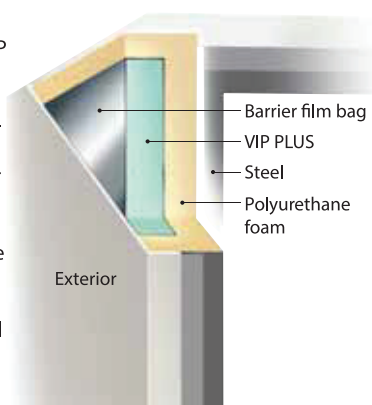
VIP ECO SMART

Cost-saving and environmentally friendly sample storage now upgraded with additional features for improved usability.

VIP ECO   −86℃

Cost-saving and environmentally friendly sample storage within an optimal footprint

MDF-DU503VH   528 L
MDF-DU503VHA

MDF-DU703VH   729 L
MDF-DU703VHA

MDF-DU702VH   729 L

MDF-DU901VHL   845 L
MDF-DU901VHA

Model No.	MDF-DU503VH MDF-DU503VHA	MDF-DU703VH MDF-DU703VHA	MDF-DU502VH	MDF-DU702VH	MDF-DU901VHL MDF-DU901VHA
Temperature Control Range	−86℃ to −40℃				−86℃ to −50℃
Effective Capacity	528 litres	729 litres	528 litres	729 litres	845 litres
External Dimensions (W x D x H)*	790 x 882 x 1993 mm	1030 x 882 x 1993 mm	790 x 882 x 1993 mm	1030 x 882 x 1993 mm	1150 x 870 x 1993 mm
Internal Dimensions (W x D x H)	630 x 600 x 1400 mm	870 x 600 x 1400 mm	630 x 600 x 1400 mm	870 x 600 x 1400 mm	1010 x 600 x 1400 mm
Net Weight (Approx.)	241 kg	276 kg	246 kg	278 kg	328 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

FrostLess   −86℃

Ultra-low temperature storage solution for valuable samples.

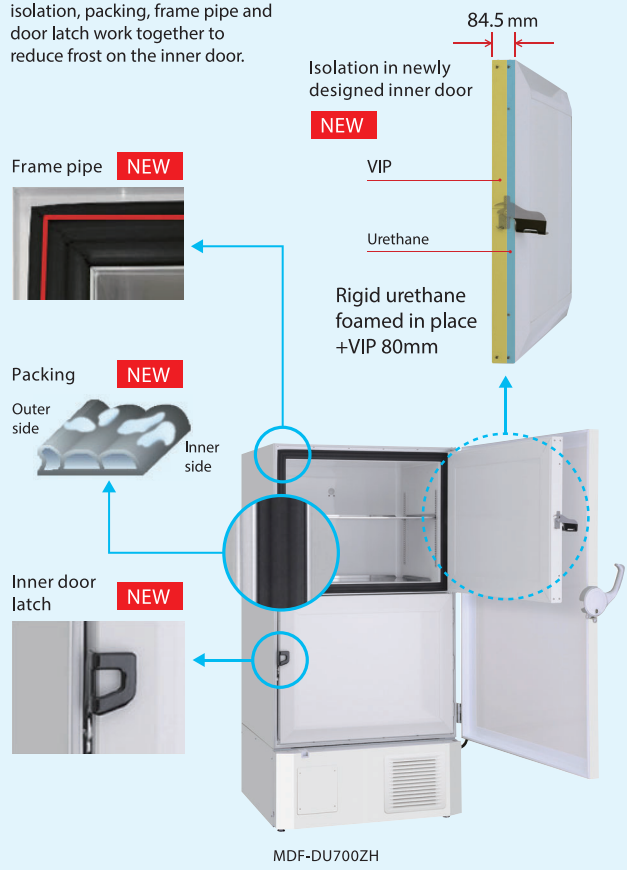MDF-DU500ZH   525 L
MDF-DU500ZHA

MDF-DU700ZH   725 L
MDF-DU700ZHA

Model No.	MDF-DU500ZH MDF-DU500ZHA	MDF-DU700ZH MDF-DU700ZHA
Temperature Control Range	−86℃ to −40℃	
Effective Capacity	525 litres	725 litres
External Dimensions (W x D x H)*	790 x 882 x 1993 mm	1030 x 882 x 1993 mm
Internal Dimensions (W x D x H)	630 x 607 x 1400 mm	870 x 607 x 1400 mm
Net Weight (Approx.)	248 kg	282 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

FrostLess

The newly designed inner door isolation, packing, frame pipe and door latch work together to reduce frost on the inner door.

84.5 mm

Isolation in newly designed inner door
NEW

Frame pipe   NEW

VIP

Urethane

Rigid urethane foamed in place +VIP 80mm

Packing   NEW

Outer side

Inner side

Inner door latch   NEW

MDF-DU700ZH

7

VIP ECO

Ultimate Sample Protection

Unlike conventional ultra low freezers, ECO ULT freezers use natural hydrocarbon (HC) refrigerants to provide minimal energy consumption, reduced environmental impact and substantially lower running costs. HC refrigerants have a high latent heat of evaporation making them much more efficient at removing heat from the freezer chamber than conventional refrigerants, resulting in up to a 71% reduction in energy consumption and costs. These refrigerants also have an extremely low Global Warming Potential, helping organizations to meet environmental objectives.

MDF-DU503VH, MDF-DU503VHA
MDF-DU703VH, MDF-DU703VHA

VIP ECO `SMART`

The ergonomic "EZlatch" now coupled with "Electric Lock"

The ergonomically designed "Ezlatch" door handle, as the name suggests, allows for secure door opening / closing with minimal force. Newly added "Electric Lock" automatically unlocks/locks the door keys, making access to stored samples much easier.
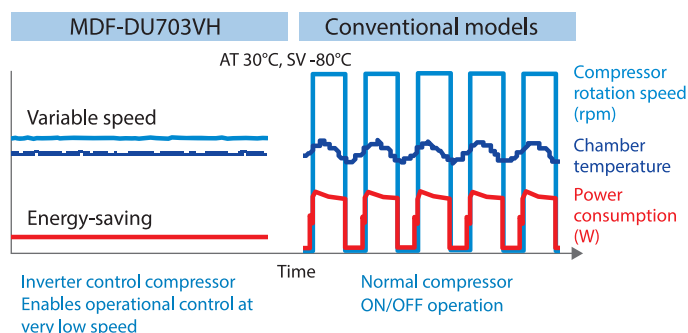
Various login methods to suit every scenario

1. Password Protection

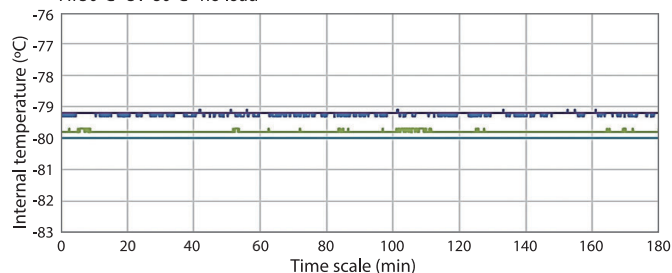   UP to 100 accounts registrable, each with individual password.

2. Face Recognition

   Take a picture of your face and register it. Once the camera recognizes you, you will automatically be logged in.

MDF-DU703VH	Conventional models

AT 30°C, SV -80°C

Variable speed

Energy-saving

Compressor rotation speed (rpm)

Chamber temperature

Power consumption (W)

Time

Inverter control compressor Enables operational control at very low speed

Normal compressor ON/OFF operation

MDF-DU703VH Temperature Uniformity Data
AT30°C   SV-80°C   no load

Internal temperature (°C) / Time scale (min)

MDF-DU703VH
Temperature recovery after door opening for 60 sec. (top door only).
Conditions: AT 23 ˚C , SV -80 ˚C

Chamber 1/2h (°C) / Elapsed time (min)
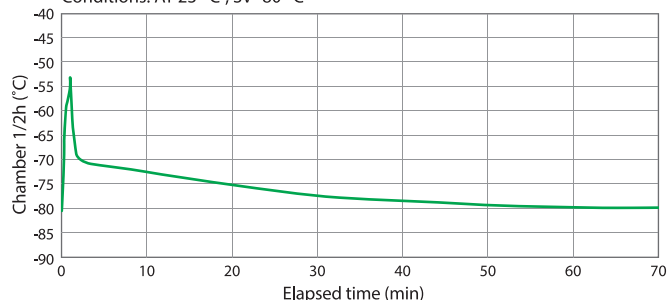
Intelligent interface

The newly designed control panel with rearranged layout and icons greatly enhances usability.
The touchscreen method has also changed from the resistive method to the capacitive method, enabling comfortable use even with lab gloves on.

Security Mode
Unlock with NFC* Authentication

NFC authentication with an "NFC reader" (sold separately) Register the IC card or NFC-equipped device of your choice. Simply hold the card over the NFC reader in the lower left corner of the control panel to automatically login and open the door.

* Available in limited countries only.

-80°C

NFC reader

USB port
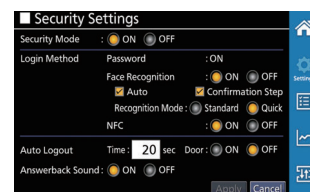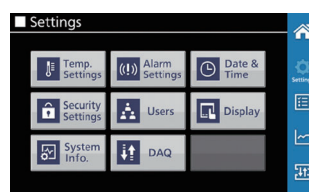
When low electrical running costs and environmental considerations are of paramount importance, put your trust in VIP ECO and PRO ECO ULT freezers.

- New heat exchanger design for greater surface area contact and overall efficiency.
- Advanced space-saving VIP PLUS Insulation (compared to our conventional models).
- Graphical LCD display with data monitoring and data log exported by USB (for MDF-DU502VH/MDF-DU702VH/MDF-DU901VHL/ MDF-DU901VHA/ MDF-DU503VH/MDF-DU503VHA/ MDF-DU703VH/ MDF-DU703VHA).

PERFORMANCE

Energy Efficient, Balanced Power Smart compressors, natural

refrigerants and integrated electronics combine to lower your facility's operating costs. Freezer operation is managed by the practical balance of temperature performance and energy management.

PRO ECO ULT Freezer

Cost-saving and environmentally friendly sample storage

VIP   −86℃

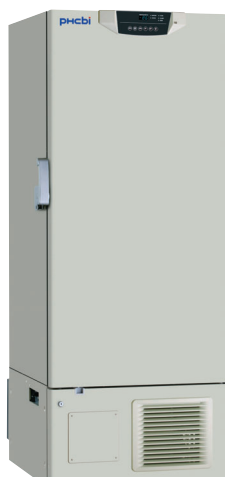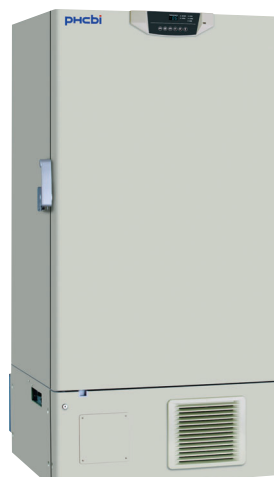Excellent reliability and uniformity within an optimal footprint

MDF-DU300H **333 L**

MDF-U33V **333 L**

MDF-U54V
MDF-U55V **519 L**

MDF-U74V **728 L**

MDF-DU900V
MDF-DU900VC **845 L**

Model No.	MDF-DU300H	MDF-U33V	MDF-U54V	MDF- U55V	MDF-U74V	MDF-DU900V	MDF-DU900VC
Temperature Control Range	−86℃ to −50℃						
Effective Capacity	333 litres	333 litres	519 litres		728 litres	845 litres	
External Dimensions (W x D x H)*	750 x 870 x 1830 mm	670 x 870 x 1860 mm	770 x 870 x 1990 mm		1010 x 870 x 2010 mm	1150 x 870 x 1990 mm	
Internal Dimensions (W x D x H)	490 x 600 x 1140 mm	490 x 600 x 1140 mm	630 x 600 x 1380 mm		870 x 600 x 1400 mm	1010 x 600 x 1400 mm	
Net Weight (Approx.)	241 kg	255 kg	296 kg	288 kg	346 kg	372 kg (PB, PE) 382 kg (PK)	382 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

Cryogenic Freezers   −152℃ / −150℃

The most uniform storage temperatures for cryopreservation solutions

MDF-1156
MDF-1156ATN **128 L**

MDF-C2156VAN **231 L**

Model No.	MDF-1156	MDF-1156ATN	MDF-C2156VAN
Temperature Control Range	−152℃ to −130℃		−150℃ to −125℃
Effective Capacity	128 litres		231 litres
External Dimensions (W x D x H)*	1400 x 800 x 945 mm		1730 x 765 x 1010 mm
Internal Dimensions (W x D x H)	500 x 450 x 572 mm		760 x 495 x 615 mm
Net Weight (Approx.)	265 kg	272 kg	318 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.   ATN: LN $_2$ back-up, Temperature recorder

VIP ECO   −86℃

Excellent reliability and uniformity within an optimal footprint

MDF-DC102VH **84 L**   MDF-DC202VH **180 L**

Model No.	MDF-DC102VH	MDF-DC202VH
Temperature Control Range	−86℃ to −40℃	
Effective Capacity	84 litres	180 litres
External Dimensions (W x D x H)*	558 x 688 x 993 mm	1018 x 688 x 993 mm
Internal Dimensions (W x D x H)	405 x 490 x 426 mm	865 x 490 x 426 mm
Net Weight (Approx.)	85 kg	115 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

Optional Accessories   (for MDF series)

Small Inner Door Kits   *

MDF-5ID-PW

MDF-5ID-PW
[for MDF-U54V, MDF-U55V]

MDF-7ID-PW
[for MDF-U74V]

MDF-9ID-PW
[for MDF-DU901VHL, MDF-DU901VHA
MDF-DU900V, MDF-DU900VC]
2 small inner doors make 1 set
(2 sets are needed if all small inner door
options are selected).

MDF-7ID4-PW

MDF-7ID4-PW/MDF-7ID5-PW
[for MDF-DU702VX, MDF-DU702VXC
MDF-DU703VH, MDF-DU703VHA
MDF-DU702VH]
4 or 5 inner doors make 1 set. MDF-5ID5
and 7ID5 include an additional shelf.

MDF-5ID5-PW

MDF-5ID4-PW/MDF-5ID5-PW
[forMDF-DU502VX, MDF-DU502VXC
MDF-DU503VH, MDF-DU503VHA
MDF-DU502VH]

*Please be aware cooling capacity will be less than specified if small inner doors are installed. Installation of the kit may e   ffect usable storage capacity.

Liquid CO $_2$ Backup Kits

Liquid N $_2$ Backup Kit
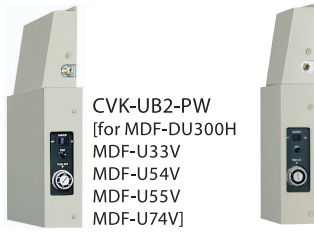
CVK-UB2-PW
[for MDF-DU300H
MDF-U33V
MDF-U54V
MDF-U55V
MDF-U74V]

MDF-UB6B-PW
[for MDF-DU900V
MDF-DU900VC]

MDF-UB5-PW
[for MDF-DC500VX
MDF-DC700VX
MDF-DC700VXC]

MDF-UB8-PW
MDF-UB8I-PW
[for MDF-DC102VH
MDF-DC202VH]

MDF-UB7-PW
[for MDF-DU302VX
MDF-DU502VX
MDF-DU502VXC, MDF-DU702VX
MDF-DU702VXC, MDF-DU502VH
MDF-DU702VH, MDF-DU901VHL
MDF-DU901VHA, MDF-DU500ZH
MDF-DU500ZHA, MDF-DU700ZH
MDF-DU700ZHA]

MDF-UB9-PW
[for MDF-DU503VH, MDF-DU503VHA
MDF-DU703VH, MDF-DU703VHA]

CVK-UBN2-PW
[for MDF-U33V, MDF-U54V
MDF-U55V, MDF-U74V]

Temperature Recorders

	2-Month Strip Chart Recorder Recording range: -100°C to +50°C	32-Day Strip Chart Recorder Recording range: -170°C to +30°C	7-Day Circular Chart Recorder Recording range: -100°C to +40°C
	MTR-85H-PW	MTR-155H-PW	MTR-G85A-PA/MTR-G85C-PE
No Mounting Brackets Required		MDF-1156	MDF-DU302VX, MDF-DU502VX, MDF-DU502VXC, MDF-DU702VX MDF-DU702VXC, MDF-DC500VX, MDF-DC700VX, MDF-DC700VXC MDF-DU503VH, MDF-DU503VHA, MDF-DU703VH, MDF-DU703VHA MDF-DU502VH, MDF-DU702VH, MDF-DU901VHL, MDF-DU901VHA MDF-DU500ZH, MDF-DU500ZHA, MDF-DU700ZH, MDF-DU700ZHA MDF-DU300H, MDF-U33V, MDF-U54V, MDF-U55V, MDF-U74V MDF-DU900V, MDF-DU900VC, MDF-DC102VH, MDF-DC202VH
Recorder Mounting Brackets (All listed models require it with above recorders)	MDF-S3085-PW MDF-DU302VX, MDF-DU502VX, MDF-DU502VXC MDF-DU702VX, MDF-DU702VXC, MDF-DC500VX MDF-DC700VX, MDF-DC700VXC, MDF-DU503VH MDF-DU503VHA, MDF-DU703VH, MDF-DU703VHA MDF-DU502VH, MDF-DU702VH, MDF-DU901VHL MDF-DU901VHA, MDF-DU500ZH, MDF-DU500ZHA MDF-DU700ZH, MDF-DU700ZHA, MDF-DU300H MDF-U33V, MDF-U54V, MDF-U55V, MDF-U74V MDF-DU900V, MDF-DU900VC, MDF-DC102VH MDF-DC202VH	MDF-S30150-PW MDF-C2156VAN	
Sensor Cover (All listed models require it with above recorders)	MTR-DU700SF-PW MDF-DU302VX, MDF-DU502VX, MDF-DU502VXC MDF-DU702VX, MDF-DU702VXC, MDF-DU503VH MDF-DU503VHA, MDF-DU703VH, MDF-DU703VHA MDF-DU502VH, MDF-DU702VH, MDF-DU901VHL MDF-DU901VHA, MDF-DU500ZH, MDF-DU500ZHA MDF-DU700ZH, MDF-DU700ZHA, MDF-DU900V MDF-DU900VC MTR-C8-PW MDF-DU300H, MDF-DC102VH, MDF-DC202VH		MTR-DU700SF-PW MDF-DU302VX, MDF-DU502VX, MDF-DU502VXC, MDF-DU702VX MDF-DU702VXC, MDF-DU503VH, MDF-DU503VHA, MDF-DU703VH MDF-DU703VHA, MDF-DU502VH, MDF-DU702VH, MDF-DU901VHL MDF-DU901VHA, MDF-DU500ZH, MDF-DU500ZHA, MDF-DU700ZH MDF-DU700ZHA, MDF-DU900V, MDF-DU900VC MTR-C8-PW MDF-DU300H, MDF-DC102VH, MDF-DC202VH

Drawer Rack

MDF-50R-PW
[for MDF-DU502VX, MDF-DU502VXC
MDF-DU503VH, MDF-DU503VHA
MDF-DU502VH)

IC Card

MTR-IC-PW
(available in limited countries only)
(for MDF-DU503VH, MDF-DU503VHA, MDF-DU703VH
MDF-DU703VHA)

NFC Reader

MTR-NFC-PW
(available in limited countries only)
(for MDF-DU503VH, MDF-DU503VHA, MDF-DU703VH
MDF-DU703VHA)

MDF Biomedical Freezers   −30℃

Stable -30°C environment with extensive storage possibilities

MDF-MU339 369 L   MDF-MU539 504 L   MDF-MU539D 479 L   MDF-U731M 690 L   MDF-U334 274 L
                                        2 independently controlled   MDF-U731 623 L
                                        temperature chambers

e.g. -30°C

e.g. -20°C

Model No.	MDF-MU339	MDF-MU539	MDF-MU539D	MDF-U731M	MDF-U731	MDF-U334
Temperature Control Range	−30℃ to −20℃					
Effective Capacity	369 litres	504 litres	479 litres	690 litres	623 litres	274 litres
External Dimensions (W x D x H)*	616 x 770 x 1802 mm	793 x 770 x 1802 mm	793 x 770 x 1802 mm	770 x 830 x 1955 mm		614 x 709 x 1620 mm
Internal Dimensions (W x D x H)	472 x 614 x 1262 mm	649 x 614 x 1262 mm	649 x 614 x 600 mm (2 chambers)	650 x 700 x 1520 mm	650 x 700 x 1370 mm	490 x 486 x 1290 mm
Baskets (W x D x H) Large	(420 x 552 x 157 mm): 6	(280 x 552 x 157 mm): 12	(280 x 552 x 157 mm): 12	Option		(446 x 369 x 220 mm): 4
Small						(487 x 221 x 155 mm): 1
Net Weight (Approx.)	135 kg	163 kg	185 kg	152 kg	155 kg	81 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MDF Biomedical Freezer   MDF Biomedical ECO Freezers   −30℃

Able to provide a stable -30°C environment   Cost-saving and environmentally friendly

MDF-U5312 482 L   MDF-MU339HL 369 L   MDF-MU539HL 504 L

Model No.	MDF-U5312	MDF-MU339HL	MDF-MU539HL
Temperature Control Range	−30℃ to −20℃		
Effective Capacity	482 litres	369 litres	504 litres
External Dimensions (W x D x H)*	804 x 772 x 1802 mm	616 x 770 x 1802 mm	793 x 770 x 1802 mm
Internal Dimensions (W x D x H)	658 x 607 x 1272 mm	472 x 614 x 1262 mm	649 x 614 x 1262 mm
Baskets (W x D x H) Large	(290 x 536 x 238 mm): 4	Option	Option
Small	(290 x 536 x 136 mm): 6		
Net Weight (Approx.)	132 kg	122 kg	144 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MDF Biomedical ECO Freezer

MDF Biomedical Freezers

−40℃

Cost-saving and environmentally friendly fresh frozen storage

e.g. -40°C

e.g. -30°C

MDF-MU549DH 479 L

2 independently controlled temperature chambers

The ideal freezing environment for preservation

MDF-U443 426 L

MDF-U5412 482 L

Model No.	MDF-MU549DH	MDF-U443	MDF-U5412
Temperature Control Range	−40℃ to −20℃	−40℃ to −15℃	−40℃ to −20℃
Effective Capacity	479 litres	426 litres	482 litres
External Dimensions (W x D x H)*	793 x 770 x 1802 mm	800 x 832 x 1810 mm	804 x 772 x 1802 mm
Internal Dimensions (W x D x H)	649 x 614 x 600 mm (2 chambers)	640 x 615 x 1090 mm	658 x 607 x 1272 mm
Baskets (W x D x H) Large	Option	—	(290 x 536 x 238 mm): 4
Baskets (W x D x H) Small	Option	—	(290 x 536 x 136 mm): 6
Net Weight (Approx.)	165 kg	213 kg	132 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MDF Biomedical Freezers

−30℃

Power to counteract frequent door openings

MDF-137 138 L

MDF-237 221 L

MDF-437 425 L

Model No.	MDF-137	MDF-237	MDF-437
Temperature Control Range	−30℃ to −20℃		
Effective Capacity	138 litres	221 litres	425 litres
External Dimensions (W x D x H)*	640 x 687 x 881 mm	905 x 687 x 881 mm	1265 x 807 x 902 mm
Internal Dimensions (W x D x H)	525 x 440 x 715 mm	790 x 440 x 715 mm	1140 x 550 x 733 mm
Net Weight (Approx.)	52 kg	60 kg	81 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

Optional Accessories (for MDF series)

Temperature Recorders

32-Day Strip Chart Recorder

Recording range: -40°C to +14°C

MTR-4015LH-PE/MTR-4015LH-PA

32-Day Strip Chart Recorder

Recording range: -100°C to +50°C

MTR-85H-PW

7-Day Circular Chart Recorder

Recording range: -100°C to +40°C

MTR-G85A-PA/MTR-G85C-PE

No Mounting Brackets Required	MDF-U334, MDF-U443	MDF-U443	

Recorder Mounting Brackets
(All listed models require it with above recorders)

MPR-S30-PW
MDF-MU339, MDF-MU539
MDF-MU539D, MDF-U731M
MDF-U731, MDF-U5312
MDF-MU339HL, MDF-MU539HL
MDF-MU549DH, MDF-U5412

MDF-S3040-PW
MDF-137, MDF-237, MDF-437

MPR-S7-PW
MDF-MU339, MDF-MU539, MDF-MU539D
MDF-U731M, MDF-U731, MDF-U5312
MDF-MU339HL, MDF-MU539HL
MDF-MU549DH, MDF-U5412

MDF-S740-PW
MDF-137, MDF-237, MDF-437

MDF-S740T-PW (for external mounting)
MDF-U334, MDF-MU539D, MDF-MU549DH

Baskets

MDF-T07SC-PW
[for MDF-U731M, MDF-U731]
2 cases are included.
14 cases are needed
to fill the entire cabinet.

MDF-03SC-PW
(for MDF-MU339, MDF-MU339HL)
2 pieces per set
W420 x D552 X H157 mm

MDF-05SC-PW
(for MDF-MU539, MDF-MU539HL
MDF-MU549DH)
2 pieces per set
W280 x D552 x H157 mm

MPR /LPR /MBR

A stable temperature environment is important for the storage of your precious drugs and samples.   However, household refrigerators do not offer a stable temperature environment due to relatively simple construction. PHCbi pharmaceutical, laboratory & blood bank refrigerators employ forced air circulation and sophisticated plenum systems to realise a uniformed temperature throughout the chamber even under a changing ambient temperature environment.

New mechanism to reduce dew condensation

Inside Temperature of Household Refrigerator
- Typical Cooling System of Household Refrigerator

Household
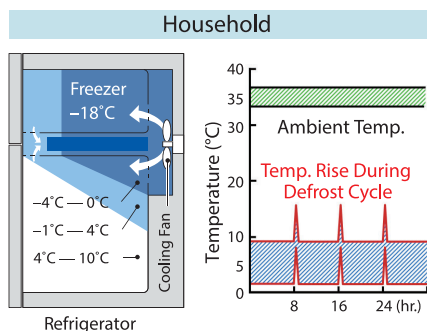
• Only one FAN to cool down refrigerator and freezer

• The difference in the temperature between the upper and lower areas of the refrigerator section can be 10°C.

In regular refrigerators it is possible for the chamber temperature to fall below 0°C depending on the ambient temperature which may cause the freezing of medicines and media. The auto defrost system turns on every 7 – 8 hours. During this time, the chamber air temperature rises.
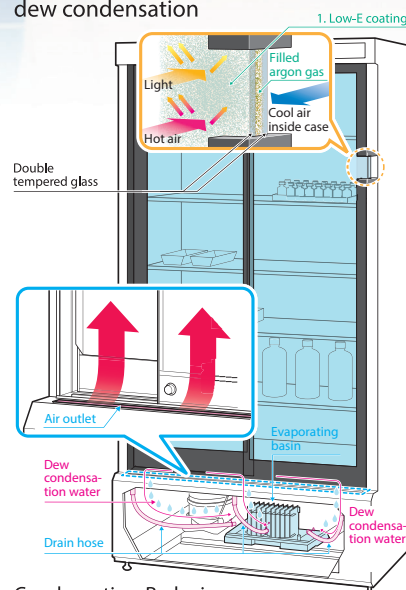
Temperature Stability – temperature Uniformity
- Multi air-flow plenum cooling system

MPR-1014 type
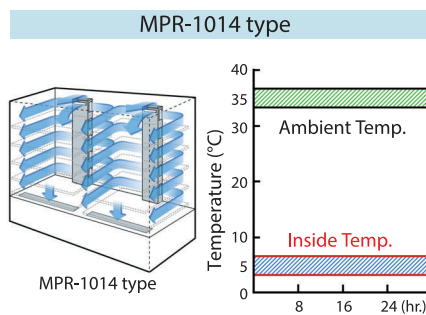
• Uniform cold air flow distribution throughout the chamber

• Ensure temperature uniformity of big capacity chamber

The cycle defr ost system turns on the defrost heater during each off period of the compressor only when needed. This control method prevents large temperature rises.

Condensation-Reducing Mechanisms for Glass Surfaces
Three Measures to Significantly Reduce Condensation:
1. The Low-E Coating Reduces the Conduction of Heat
2. Argon Gas-Filled Insulation
3. Suppression of Temperature Difference by Blowing Away Dissipating Heat

For MPR-S500H, MPR-S500RH only: A drainage mechanism prevents any build-up of water. Condensation that drips outside of the glass door is collected by the rails at the bottom and drained to the evaporating basin at the bottom.

LPR Laboratory Refrigerator

Swing Door Type

MPR Pharmaceutical Refrigerators   2°C to 14°C

Sliding Door Type

LPR-400   400 L

MP R - S150H   165 L

MP R - S 300H   345 L

Model No.	LPR-400
Temperature Control Range	4°C to 14°C
Effective Capacity	400 litres
External Dimensions (W x D x H)*	610 x 716 x 1886 mm
Internal Dimensions (W x D x H)	516 x 550 x 1467 mm
Net Weight (Approx.)	81 kg
	Wire shelf type

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

Model No.	MPR-S150H	MPR-S300H
Temperature Control Range	2°C to 14°C	
Effective Capacity	165 litres	345 litres
External Dimensions (W x D x H)*	800 x 500 x 1120 mm	800 x 500 x 1820 mm
Internal Dimensions (W x D x H)	720 x 360 x 725 mm	720 x 360 x 1425 mm
Net Weight (Approx.)	73 kg	105 kg
	Wire shelf type	Wire shelf type

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MPR Pharmaceutical Refrigerators   2°C to 14°C

Sliding Door Type

MPR-S500H **554 L**   MPR-S500RH **550 L**   MPR-1014 **1033 L**   MPR-1014R **1029 L**

Model No.	MPR-S500H	MPR-S500RH	MPR-1014	MPR-1014R
Temperature Control Range	2°C to 14°C			
Effective Capacity	554 litres	550 litres	1033 litres	1029 litres
External Dimensions (W x D x H)*	900 x 650 x 1824 mm		1800 x 600 + (58) mm x 1790 mm	
Internal Dimensions (W x D x H)	800 x 510 x 1425 mm		1700 x 465 x 1300 mm	
Net Weight (Approx.)	140 kg	146 kg	246 kg	258 kg
	Wire shelf type	Left side: Wire shelf type Right side: Drawer type	Wire shelf type	Left side: Wire shelf type Right side: Drawer type

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MPR Pharmaceutical Refrigerators   2°C to 23°C

Swing doors, service outlets and freely removable shelves ideal for operating chromatographs or analytical equipment inside.

MPR-722R **671 L**   MPR-1412 **1364 L**   MPR-1412R **1359 L**

Model No.	MPR-722	MPR-722R	MPR-1412	MPR-1412R
Temperature Control Range	2°C to 23°C			
Effective Capacity	684 litres	671 litres	1364 litres	1359 litres
External Dimensions (W x D x H)*	770 x 830 x 1955 mm		1440 x 830 x 1950 mm	
Internal Dimensions (W x D x H)	650 x 710 x 1500 mm		1320 x 710 x 1500 mm	
Net Weight (Approx.)	174 kg	193 kg	248 kg	287 kg
	Wire shelf type	Drawer type	Wire shelf type	Drawer type

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MPR Pharmaceutical Refrigerators with Freezer

Refrigerator: **2℃ to 14℃** | Freezer: **-30℃ to -20℃**

Providing a complete storage solution; Refrigerator and freezer in one unit

MPR-N250FH*
ECO natural refrigerants | IC+ inverter compressor | OLED control panel
Refrigerator **179 L**
Freezer **80 L**

MPR-N450FH*
ECO natural refrigerants | IC+ inverter compressor | OLED control panel
Refrigerator **326 L**
Freezer **136 L**

MPR-715F
Refrigerator **415 L**
Freezer **176 L**

Model No.	MPR-N250FH	MPR-N250FSH	MPR-N450FH	MPR-N450FSH	MPR-715F
Temperature Control Range	Refrigerator: 2°C to 14°C Freezer: −30°C to −20°C				
Effective Capacity Refrigerator:	179 litres		326 litres		415 litres
Freezer:	80 litres		136 litres		176 litres
External Dimensions (W x D x H)**	510 x 640 x 1810 mm		800 x 640 x 1810 mm		900 x 715 x 1910 mm
Internal Dimensions (W x D x H) Refrigerator:	430 x 516 x 903 mm		720 x 516 x 913 mm		810 x 615 x 894 mm
Freezer:	390 x 501 x 413 mm		680 x 470 x 415 mm		770 x 552 x 422 mm
Net Weight (Approx.)	95 kg	91 kg	129 kg	121 kg	170 kg

* Limited countries and regions
** External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.
FSH: No glass window

Optional Accessories   (for MPR/MBR series)

Temperature Recorders

32-Day Strip Chart Recorder
Recording range: -40°C to +14°C
MTR-4015LH-PE
MTR-4015LH-PA

32-Day Strip Chart Recorder
Recording range: -6°C to +20°C
MTR-0621LH-PE
MTR-0621LH-PA

7-Day Circular Chart Recorder
Recording range: -10°C to +40°C
MTR-G04A-PA
MTR-G04C-PE

7-Day Circular Chart Recorder
Recording range: -60°C to +40°C -10°C to +40°C
MTR-G3504A-PA
MTR-G3504C-PE
* 2-pen type circular recorder for refrigeration and freezing

No Mounting Brackets Required
MBR-305GR, MBR-705GR MBR-1405GR *
* MBR has a recorder as a standard accessory.

Recorder Mounting Brackets (All listed models require it with above recorders)

MPR-S30-PW
MPR-N250FH*
MPR-N250FSH*
MPR-N450FH*
MPR-N450FSH*
MPR-715F *Freezer side

MPR-S30-PW
MPR-S150H, MPR-S300H, MPR-S500H
MPR-S500RH, MPR-1014, MPR-1014R
MPR-722, MPR-722R, MPR-1412
MPR-1412R, MPR-N250FH, MPR-N250FSH
MPR-N450FH, MPR-N450FSH, MPR-715F

MPR-S7-PW
MPR-S150H, MPR-S300H
MPR-S500H, MPR-S500RH
MPR-1014, MPR-1014R
MPR-722, MPR-722R
MPR-1412, MPR-1412R

MPR-S7-PW
MPR-N250FH, MPR-N250FSH
MPR-N450FH, MPR-N450FSH
MPR-715F

External Mounting Power Failure Alarm

Battery box

MPR-48B1-PW
[for MPR-722, MPR-722R
MPR-1412, MPR-1412R
MPR-715F]

MPR-48B2-PW
[for MPR-S150H, MPR-S300H
MPR-S500H, MPR-S500RH
MPR-N250FH, MPR-N250FSH
MPR-N450FH, MPR-N450FSH]

Name Card Holder

MPR-15CH-PW
MPR-S150H, MPR-S300H
MPR-50CH-PW
MPR-S500H
MPR-50RCH-PW
MPR-S500RH

Light Shielding Plate

MPR-25BP-PW
MPR-N250FH
MPR-45BP-PW
MPR-N450FH
MPR-72BP-PW
MPR-722, MPR-722R
MPR-1412, MPR-1412R

Inventory Drawer

MPR-31LR-PW
(x 3 for Left Compartment)
MPR-S300H
MPR-31RR-PW
(x 3 for Right Compartment)
MPR-S300H

Additional Shelf for Freezer

MPR-250ST-PW
MPR-250FH, MPR-250FSH
MPR-450ST-PW
MPR-N450FH, MPR-N450FSH

Shading Glass Door

MPR-150GH-PW
MPR-S150H
MPR-300GH-PW
MPR-S300H
MPR-500GH-PW
MPR-S500H, MPR-S500RH

Container for Freezer

MPR-45FSC-PW (×2 pcs.)
MPR-N450FH, MPR-N450FSH
MPR-715SC-PW (×2 pcs.)
MPR-715F

Robust design for safest storage of whole blood

MBR-107DH   79 L

MBR-305GR   302 L

MBR-506DH   425 L

Model No.	MBR-107DH **	MBR-305GR **	MBR-506DH **
Temperature	4°C		
Effective Capacity	79 litres	302 litres	425 litres
External Dimensions (W x D x H)*	400 x 495 x 1515 mm	600 x 680 x 1835 mm	800 x 832 x 1810 mm
Internal Dimensions (W x D x H)	320 x 350 x 710 mm	520 x 490 x 1150 mm	640 x 550 x 1240 mm
Net Weight (Approx.)	70 kg	147 kg	185 kg

D: 32-day strip chart recorder
G: 1-day/7-day/32-day circular chart recorder
R: Drawer type

 * External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.
** Uses LED lamps.

MBR-705GR   622 L

MBR-1405GR   1301 L

Model No.	MBR-705GR	MBR-1405GR
Temperature	4°C	
Effective Capacity	622 litres	1301 litres
External Dimensions (W x D x H)*	770 x 830 x 1955 mm	1440 x 830 x 1950 mm
Internal Dimensions (W x D x H)	650 x 697 x 1500 mm	1320 x 710 x 1500 mm
Net Weight (Approx.)	213 kg	315 kg

G: 1-day/7-day/32-day circular chart recorder
R: Drawer type

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MCO CO_2 Incubators

Ambient temp. +5°C to 50°C

Optimising cell culture outcomes and reproducibility

MCO-170AIC/MCO-170AICL   **165 L**
MCO-170AICUV/MCO-170AICUVL
MCO-170AICUVH/MCO-170AICUVHL

MCO-170AICD/MCO-170AICDL   **165 L**
MCO-170AICUVD/MCO-170AICUVDL

MCO-230AIC/MCO-230AICL   **230 L**
MCO-230AICUV/MCO-230AICUVL

*1 Standard for Model No. Including UV *2 Standard for Model No. Including UVH

Model No.	MCO-170AIC MCO-170AICL MCO-170AICUV MCO-170AICUVL MCO-170AICUVH MCO-170AICUVHL	MCO-170AICD MCO-170AICDL MCO-170AICUVD MCO-170AICUVDL	MCO-230AIC MCO-230AICL MCO-230AICUV MCO-230AICUVL
Temperature Control Range	Ambient temperature + 5°C to 50°C (AT 5°C to 35°C)		
CO_2 Setting Range	0 to 20%		
Chamber Humidity	95 ±5% R.H.		
Interior Volume	165 litres	165 litres	230 litres
External Dimensions (W x D x H)*	620 x 730 x 905 mm	620 x 755 x 905 mm	770 x 730 x 905 mm
Internal Dimensions (W x D x H)	490 x 523 x 665 mm	490 x 523 x 665 mm	643 x 523 x 700 mm
Net Weight (Approx.)	80 kg	79 kg (AICD), 80 kg (AICUVD)	90 kg

* External dimensions of main cabinet only – see dimension drawings on flyers showing handles and other external projections.

MCO-50AIC   **50 L**
MCO-50AICL

MCO-170AC   **165 L**
MCO-170ACL

MCO-80IC   **851 L**

Model No.	MCO-50AIC/MCO-50AICL	MCO-170AC/MCO-170ACL	MCO-80IC
Temperature Control Range	Ambient temperature + 5°C to 50°C (AT 5°C to 35°C)		
CO_2 Setting Range	0 to 20%		
Chamber Humidity	95 ±5% R.H.		Normal mode; Over 80% R.H. High humidity mode; Over 90% R.H.
Interior Volume	50 litres	165 litres	851 litres
External Dimensions (W x D x H)*	480 x 550 x 585 mm	620 x 730 x 905 mm	986 x 853 x 2040 mm
Internal Dimensions (W x D x H)	370 x 363 x 385 mm	490 x 523 x 665 mm	806 x 693 x 1524 mm
Net Weight (Approx.)	45 kg	74 kg	275 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

Integrated shelves

Increase in cleaning and storage efficiency with Integrated Tray Catches

The unit employs an integrated tray structure without shelf supports thereby reducing the number of interior components by approximately 80%* and significantly saving cleaning time needed when changing cells for incubation.

Compared to current products, the required cleaning time and task are

Approx.
1/5 *

Interior components of MCO-170AIC

Approx.
80% *
fewer Interior components

Interior components: 5

Interior components of MCO-19AIC

Interior components: 26

Tray space has increased by approximately 25%* while using virtually the same installation space used in conventional models.
Four more 100ø dishes can be set up than when using conventional models.

Tray from MCO-170AIC

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

Depth 450 mm

Width 470 mm
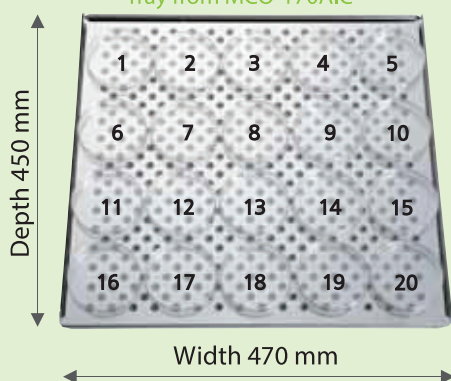
100ø 20 dishes

Approx.
25% *
more storage

4 additional 100ø dishes can be set up

Tray from MCO-19AIC

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Depth 450 mm

Width 450 mm

100ø 16 dishes
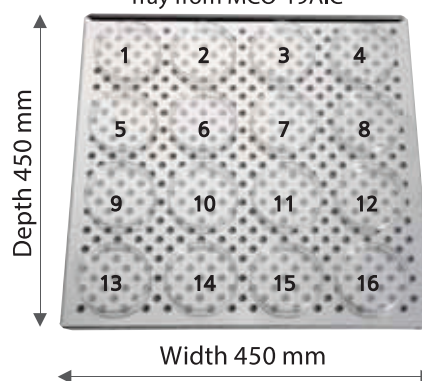
H₂O₂ decontamination

In 2 hours and half (approx.)
H$_2$O$_2$ Decontamination

Approx.
2.5 hrs **

The high-speed decontamination system using H$_2$O$_2$ that is also used for in regenerative medicine equipment can complete the entire decontamination process in approximately 135 minutes (about 2 hours including preparation time), enhancing work efficiency for researchers and enabling complete decontamination within the unit.

DUAL HEAT sterilisation

Solving issues in dry heat sterilisation
Dual Heat Sterilisation

Approx.
11 hrs
180 ℃

No more problems during dry heat sterilisation: such as interior components removal during sterilisation; temperature/CO$_2$ density composition before restart; impacts to temperature when stacking two boxes; and current consumption.

*Compared to MCO-19AIC
**PHCbi measurement. Decontamination time differs depending on time required for cabinet cleaning and interior parts installation

MCO Multi-Gas Incubators

Ambient temp. +5℃ to 50℃
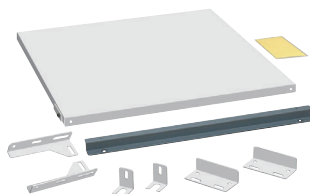
MCO-170M
MCO-170ML   **161 L**

MCO-50M   **50 L**

Model No.	MCO-170M/MCO-170ML	MCO-50M
Temperature Control Range	Ambient temperature + 5˚C to 50˚C (AT 5˚C to 35˚C)	
CO_2 Setting Range	0 to 20%	
O_2 Setting Range	1 to 18%, 22 to 80%	
Chamber Humidity	95 ±5% R.H.	
Interior Volume	161 litres	50 litres
External Dimensions (W x D x H)*	620 x 730 x 905 mm	480 x 550 x 585 mm
Internal Dimensions (W x D x H)	490 x 523 x 665 mm	370 x 363 x 385 mm
Net Weight (Approx.)	77 kg	46 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing
 handles and other external projections.

Optional Accessories   (for MCO series)

Double-stacking Bracket
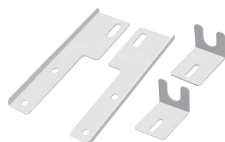
MCO-170PS-PW
Upper unit:
MCO-170AC series, MCO-170AIC series
MCO-170AICD series, MCO-170M series
Lower unit:
MCO-170AC series, MCO-170AIC series
MCO-170AICD series, MCO-170M series

Upper unit:
MCO-230AIC series
Lower unit:
MCO-230AIC series

Upper unit:
MCO-50M, MCO-50AIC series
Lower unit:
MCO-50M, MCO-50AIC series

Stacking Plate

MCO-170SB-PW
Upper unit:
MCO-170AC series, MCO-170AIC series
MCO-170AICD series, MCO-170M series
Lower unit:
MCO-20AIC series, MCO-19AIC series
MCO-19M series, MCO-18AC series

MCO-50SB-PW
Upper unit:
MCO-50M, MCO-50AIC series
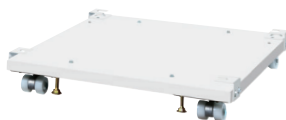Lower unit:
MCO-5M, MCO-5AC series
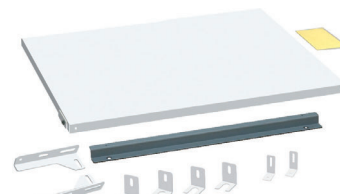
MCO-230SB-PW
Upper unit:
MCO-170AC series, MCO-170AIC series
MCO-170AICD series, MCO-170M series
Lower unit:
MCO-230AIC series

Upper unit:
MCO-230AIC series
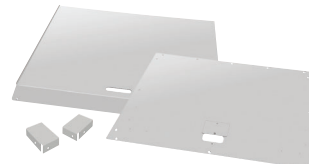Lower unit:
MCO-230AIC series

Roller Base

MCO-230RB-PW
[for MCO-230AIC series]

MCO-170RB-PW
[for MCO-170AIC series
MCO-170AICD series
MCO-170AC series
MCO-170M series]
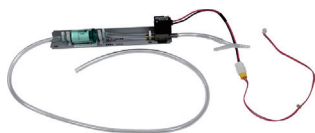
MCO-50RB-PW
[for MCO-50AIC series
MCO-50M series]

Roller Bottle Rack

MCO-80RBS-PW
[for MCO-80IC]

Other Options (for MCO series)

Gas Auto Changer

*Photo:MCO-21GC-PW

MCO-50GC-PW
[for MCO-50AIC series, MCO-50M series]

MCO-80GC-PW
[for MCO-80IC]

MCO-21GC-PW
(for MCO-170AIC series
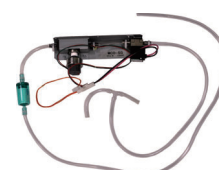MCO-170AICD series, MCO-230AIC series
MCO-170AC series, MCO-170M series)

MCO-21GCP-PW
[for MCO-170AIC series
MCO-170AICD series, MCO-230AIC series
MCO-50AIC series, MCO-170AC series
MCO-170M series)

Gas Regulator

MCO-010R-PW
[except for MCO-80IC]

STD Gas Auto Calibration Kit

MCO-SGP-PW
[for MCO-170AIC series
MCO-170AICD series
MCO-230AIC series, MCO-170M series]

Tray (same as that of standard accessory)

MCO-170ST-PW
[for MCO-170AIC series, MCO-170AICD series
MCO-170AC series, MCO-170M series]

MCO-230ST-PW
[for MCO-230AIC series]
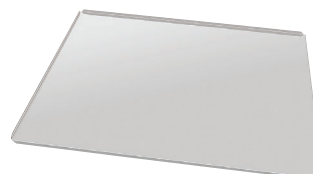
MCO-80ST-PW
[for MCO-80IC]

MCO-50ST-PW
[for MCO-50AIC series
MCO-50M series]

Reinforced Additional Tray (inCu-saFe®)
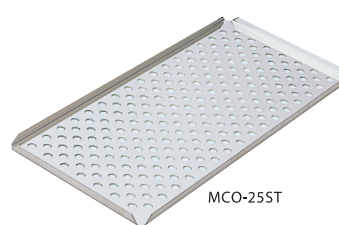
(front) MCO-170RT

(front) MCO-230RT

(back) MCO-170RT

(back) MCO-230RT

MCO-170RT-PW
[for MCO-170AIC series, MCO-170AICD series
MCO-170AC series, MCO-170M series]

MCO-230RT-PW
[for MCO-230AIC series]

Half Tray

MCO-25ST

MCO-25ST-PW
[for MCO-170AIC series
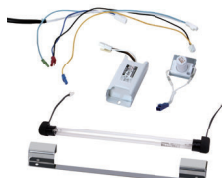MCO-170AICD series, MCO-170AC series
MCO-170M series]
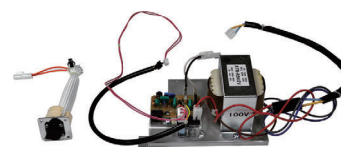
MCO-35ST-PW
[for MCO-230AIC series]

UV System Set *1

*Photo:MCO-170UVS-PE/PA

MCO-170UVS-PE *2/PA*3
[for MCO-170AIC, MCO-170AICL, MCO-230AIC
MCO-230AICL, MCO-50AIC, MCO-50AICL
MCO-170AC series, MCO-170M series, MCO-50M]

MCO-170UVSD-PE
(for MCO-170AICD series)

MCO-80UVS-PE*2/PK
[for MCO-80IC]

H_2O_2 Decontamination Control Board

*Photo:MCO-170HB-PE/PA

MCO-170HB-PE *2/PA*3
[for MCO-170AIC, MCO-170AICL, MCO-170AICUV, MCO-170AICUVL
MCO-230AIC series, MCO-170M series]

MCO-50HB-PW
[for MCO-50AIC, MCO-50AICL, MCO-50M]

H_2O_2 Generator

MCO-HP-PW*4
[for MCO-170AIC series
MCO-230AIC series,
MCO-170M series]

MCO-50HP-PW
[for MCO-50AIC series,
MCO-50M series]

Electric Lock

MCO-170EL-PW
[for MCO-170AIC, MCO-170AICL
MCO-170AICUV, MCO-170AICUVL
MCO-230AIC series, MCO-50AIC series
MCO-170M series, MCO-50M]

Small Door

MCO-170ID-PW
[for MCO-170AIC series
MCO-170AC series]

MCO-80ID-PW
[for MCO-80IC]

Auto Water Supply System

MCO-80AS-PW
[for MCO-80IC]

H_2O_2 Reagent

MCO-H2O2-PV
[for MCO-HP-PW]

MCO-5H2O2-PV
[for MCO-50AIC series
MCO-50M]

*Photo:
MCO-H2O2-PV

Interface Board (4-20 mA)

MCO-420MA-PW
[for MCO-170AIC series, MCO-170AICD series, MCO-230AIC series
MCO-50AIC series, MCO-170AC series, MCO-170M series
MCO-50M series]

*1 MCO-170UVSD is equipped with MCO-170AICUVD/MCO-170AICUVDL as standard.
  MCO-170UVS is equipped with MCO-170AICUV/MCO-170AICUVL/MCO-170AICUVH/MCO-170AICUVHL and
  MCO-230AICUV/MCO-230AICUVL as standard.
*2 For 220 V—240 V 50 Hz—60 Hz

*3 For 110 V—120 V 60 Hz
*4 The optional components UV System Set, MCO-170UVS, and H_2O_2 Decontamination Control
  Board, MCO-170HB must be attached to the unit in order to add the H_2O_2 decontamination
  function, except MCO-170AICUHV/MCO-170AICUVHL

MIR Cooled Incubators

-10℃ to 60℃

All-round performance

MIR-154 | 123 L

MIR-254 | 238 L

MIR-554 | 406 L

Model No.	MIR-154	MIR-254	MIR-554
Temperature Control Range	−10℃ to 60℃ (AT 5℃ to 35℃)		
Interior Volume	123 litres	238 litres	406 litres
External Dimensions (W x D x H)*	700 x 580 x 1018 mm	700 x 580 x 1618 mm	800 x 832 x 1810 mm
Internal Dimensions (W x D x H)	620 x 368 x 555 mm	620 x 368 x 1088 mm	640 x 550 x 1160 mm
Net Weight (Approx.)	78 kg	108 kg	195 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MIR Heated Incubators

Ambient temp. +5℃ to 60℃ (AT 0 to 20℃)
Ambient temp. +5℃ to 80℃ (AT 20 to 35℃)

Intuitive and easy operable Heated Incubators

MIR-H163 | 93 L

MIR-H263 | 153 L

Model No.	MIR-H163	MIR-H263
Temperature Control Range	Ambient temp. +5℃ to 60℃ (AT 0℃ to 20℃), Ambient temp. +5℃ to 80℃ (AT 20℃ to 35℃)	
Interior Volume	93 litres	153 litres
External Dimensions (W x D x H)*	580 x 595 x 820 mm	730 x 645 x 870 mm
Internal Dimensions (W x D x H)	450 x 460 x 450 mm	600 x 510 x 500 mm
Net Weight (Approx.)	50 kg	67 kg

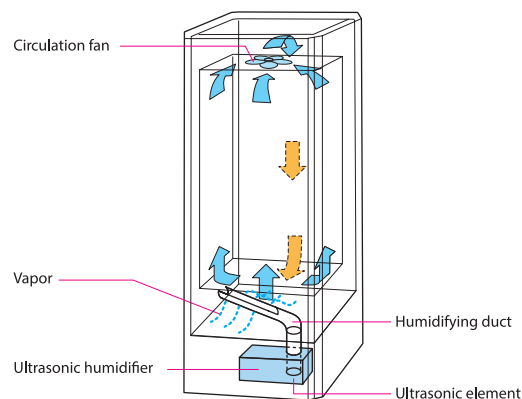* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

MLR Climate Chambers

Versatile Climate Chambers

MLR-352H 294 L

Humidity control function (only for H type) suited for raising plants

Circulation fan
Vapor
Ultrasonic humidifier
Humidifying duct
Ultrasonic element

Model No.	MLR-352	MLR-352H
Temperature Control Range	0℃ to 50℃ (Light OFF) 10℃ to 50℃ (Light ON)	5℃ to 50℃ (Light OFF) 10℃ to 50℃ (Light ON)
Humidity Control Range	—	60 to 90 % RH (Light OFF) 55 to 85 % (Light ON)
Interior Volume	294 litres	
External Dimensions (W x D x H)*	760 x 700 x 1835 mm	
Internal Dimensions (W x D x H)	520 x 490 x 1135 mm	
Net Weight (Approx.)	226 kg	235 kg

* External dimensions of main cabinet only - see dimension drawings on flyers showing handles and other external projections.

H: Humidifier type

This holds an ultrasound humidifier controlled by a PID controller, making it able to control the humidity of an area of 60 — 90% RH (fluorescent light off).

Furthermore, it is able to humidify the chamber with the L-shaped humidifying pipe installed at the bottom of the chamber.

Optional Accessories (for MIR and MLR series)

Additional Illumination Kit	Stacking Kit	Inner Door	Blackout Panels	Hasp Lock Kit
MIR-L15-PK *1 (15W x 3 pcs. Fluorescent) MIR-L15-PE *2 MIR-L15-PA *3 (for MIR-154, MIR-254, MIR-554)	MIR-S154SB-PW (for MIR-154, MIR-254)	MIR-55ID-PW (for MIR-554)	MIR-154BP-PW (for MIR-154) MIR-254BP-PW (for MIR-254)	MIR-LP-PW (for MIR-154, MIR-254)

*1 For 220 V 60 Hz
*2 For 220 V—240 V 50 Hz
*3 For 110 V—120 V 60 Hz

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