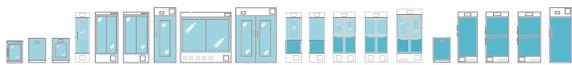




DESIGNED FOR VACCINE,  
PHARMACEUTICAL AND  
MEDICAL PRODUCT STORAGE.

PHCbi brand refrigerators and freezers are specifically designed to create and maintain the precise temperatures needed for safe storage of vaccines and pharmaceuticals.



High Performance  
Biomedical Refrigerators  
and Freezers

# IT'S THE QUALITY OF COLD

that determines the efficacy of internal storage conditions.



*MPR-N450FH-PA  
Combo Refrigerator/Freezer*



*MDF-U731M-PA  
-30°C Manual Defrost  
Biomedical Freezer*



*MPR-722R-PA  
Pharmaceutical Refrigerator*



*TSU-4RW-N6\*  
Undercounter Refrigerator*

Storage temperatures specified in pharmaceutical product inserts are categorized as refrigerated or frozen. While frozen products typically tolerate a broader temperature environment, refrigerated products must be kept from freezing.

The combination of temperature control accuracy, interior temperature uniformity, quick recovery, resistance to high ambient temperature and multiple monitoring processes delivers a quality of cold that characterizes our commitment to engineering, storage safety and reliability.



MEETS  
CDC VACCINE  
RECOMMENDATION



MEETS  
CDC PHARMACY  
RECOMMENDATION

*Our pharmacy storage cabinets are designed to meet current  
CDC pharmacy guidelines and upcoming standards for vaccine storage.*

\* TSU-4RW-N6 is manufactured by Turbo Air Inc. and distributed by PHC Corporation of North America.



The CDC estimates that more than \$20 million is lost each year - in the Vaccines for Children program alone - on wasted pharmaceuticals stored under insufficient conditions. In addition, it is impossible to visually verify if a vaccine has been frozen during a temperature excursion in cold chain storage. This may render the vaccine ineffective and may negate the purpose of the immunization itself, leading to a potential exposure to disease. <sup>1,2,3,4,5,6</sup>

## Excellence in cold chain storage.

Our refrigerators, freezers and combo refrigerators/freezers represent more than fifty years of engineering excellence in cold chain storage and temperature controlled products. From the refrigeration platform to the control center and cabinet configuration, each model delivers an extra measure of protection for safety and viability of high value pharmaceuticals.

## GOVERNING BODIES

More information on standards associated with improving storage and safety of vaccines and other pharmaceutical independent reports is available from these and other agencies.

- [American National Standards Institute \(ANSI\), Ann Arbor, MI](#)
- [National Institute for Standards and Technology \(NIST\), Gaithersburg, MD](#)
- [NSF International, Ann Arbor, MI](#)
- [U.S. Centers for Disease Control and Prevention \(CDC\), Atlanta, GA](#)
- [Vaccines for Children Program \(VFC\), NSF, Atlanta, GA](#)
- [World Health Organization \(WHO\), Geneva, Switzerland](#)



We have earned ENERGY STAR certification for a selection of high performance biomedical refrigerators and freezers that operate over a temperature range of 10°C to -40°C. ENERGY STAR products are third-party certified based on testing in EPA-recognized laboratories. For the latest information on our ENERGY STAR products visit [www.phcd.com/us/biomedical/energy-star](http://www.phcd.com/us/biomedical/energy-star).



# Designed for Vaccine, Pharmaceutical and Medical Product Storage.

4

## ACCURACY

Temperature accuracy is a critical requirement in the quality of cold. Our refrigerators are factory pre-set at 5°C (41°F). This assures interior storage temperature is sufficiently above the freezing point of vaccines and other liquid-based pharmaceuticals that can lose efficacy if frozen. This margin is essential for storage of small-volume doses in microsyringes that can freeze quickly if exposed to 0°C (32°F) for a short time following a door-open recovery period.

## UNIFORMITY

The quality of cold starts with interior temperature uniformity from top-to-bottom, front-to-back and side-to-side. Uniformity assures stored product safety regardless of where in the refrigerator it is placed.

## PERFORMANCE

Frequent door openings are common in facilities where vaccines are stored for distribution and administration. Vaccines are sensitive to freezing temperatures. PHCbi brand refrigerators protect against the possibility of freezing with a combination of precise temperature control and positive airflow balanced within the cabinet and monitored by a microprocessor-based controller.

## AMBIENT TOLERANCE

High ambient temperatures are common in all US markets during the summer months, especially when HVAC demand is stressed due to low-voltage or brown-out conditions. PHCbi brand refrigerators and freezers are designed with high-efficiency insulation, peripheral gaskets to prevent cold air loss and

robust refrigeration components selected for broad voltage tolerance. Insulated glass doors on selected models reduce or eliminate condensation.

## MONITORING

PHCNA's advanced IoT ecosystem—including LabSVIFT for centralized fleet visibility and LabAlert® for independent real-time monitoring—ensures comprehensive oversight of cold storage performance. These solutions provide remote access, automated alerts, and secure data logging to support compliance and proactive service. Local control features such as secure setpoint management, high-visibility temperature displays, and USB data export complement the broader monitoring infrastructure.

## Vaccine Storage Recommendations

If a vaccine freezes, its efficacy may be diminished or destroyed without visible indication. Thus, vaccines inadvertently frozen in cold chain distribution or local storage may not offer protection to patients.<sup>1</sup>

In an effort to assure the quality of vaccines at the end of the distribution cold chain, the United States Centers for Disease Control and Prevention (CDC) has published guidelines for best practices in vaccine storage.<sup>3</sup> These guidelines, which continue to evolve, are based on studies conducted by the National Institute of Standards and Technology (NIST).<sup>2</sup>

Established in 2014, these guidelines are designed to isolate and identify the conditions that affect vaccine efficacy and storage integrity, including the following areas of focus:

- Must not be a household or dormitory type of refrigerator. Dormitory-style units should not be used under any circumstances. This type of refrigerator poses a significant risk of freezing a vaccine even when it is used for temporary storage. A NIST report showed that this type of unit demonstrated inconsistent temperature control, regardless of where the vaccine was located in the chamber. Within two weeks of use, median temperature of the refrigerator setpoint had drifted approximately 4°C lower, freezing the vaccines contained inside<sup>4</sup>
- Must offer dedicated storage in a stand-alone refrigerator specifically designed to establish and maintain key performance parameters
- Must maintain accurate, uniform and repeatable storage temperature over a range of 2°C to 8°C (36°F to 46°F). The factory setpoint is 5°C (41°F)
- Must protect from freezing temperatures anywhere in the refrigerator. This is critical for storage of small vaccine doses and microsyringes that can freeze quickly
- For vaccines that require frozen storage, freezer temperature range must be between -15°C to -50°C (5°F to -58°F)
- May require NIST calibrated thermometer with certificate of calibration



## ANIMAL VACCINE APPLICATIONS

High performance biomedical refrigerators and freezers are also recommended for storage of vaccines and other pharmaceuticals developed for veterinary use. These applications include veterinary offices, zoological and animal preservation reserves, farm cooperatives and large-scale dairy operations where herd management is required and vaccines are stored.

- 1) Office of Inspector General (OIG), U.S. Department of Health and Human Services. (2012). Vaccines for Children Program: Vulnerabilities in vaccine management (Report No. OEI-04-10-00430). Retrieved from <https://oig.hhs.gov/reports/all/2012/vaccines-for-children-program-vulnerabilities-in-vaccine-management/>
- 2) U.S. Government Publishing Office. (2012). Vaccines for Children Program: Vulnerabilities in vaccine management (SuDoc HE 1.75:OEI-04-10-00430). Retrieved from <https://www.govinfo.gov/app/details/GOVPUB-HE-PURL-gpo67801>
- 3) NSF International (NSF) and The U.S. Center for Disease Control and Prevention have assigned industry consultants comprised of leading refrigeration and freezer cabinet manufacturers, including PHC Corporation of North America, to establish vaccine storage guidelines with an emphasis on establishing criteria for storage refrigerators to protect refrigerated vaccines from freezing. These criteria will require that all vaccines be stored in refrigerators that meet performance standards currently offered by PHC Corporation of North America.
- 4) Centers for Disease Control and Prevention. (2024). Vaccine storage and handling toolkit (Updated March 29, 2024). Retrieved from <https://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf>
- 5) Centers for Disease Control and Prevention. (2024). Vaccine storage and handling resources. Retrieved from <https://www.cdc.gov/vaccines/hcp/storage-handling/resources.html>
- 6) U.S. National Institute of Standards and Technology. (2009). *Thermal analysis of refrigeration systems used for vaccine storage*. Gaithersburg, MD: Chojnacky, M., Miller, W., Ripple, D., & Strouse, G. Retrieved from [http://www.nist.gov/customcf/get\\_pdf.cfm?pub\\_id=904574](http://www.nist.gov/customcf/get_pdf.cfm?pub_id=904574).



Use of non-compliant household or domestic refrigerators for pharmaceutical storage may be unsafe, costly and creates liabilities for any audited dispensing pharmacy clinician at a leading hospital or health agency that cannot assure the efficacy of vaccines associated with federally funded programs or other public health initiatives.<sup>1,2,3,4</sup>



High Performance Model PR-L5181W-PA Undercounter Refrigerator



High Performance Model MPR-S300H-PA Pharmaceutical Refrigerator



High Performance Model MPR-N450FSH-PA Combo Refrigerator/Freezer

## CDC Regulatory Compliance Requirements for Vaccine Storage

MPR Series Refrigerators, Combo Refrigerators/Freezers, and Freezers are designed to meet best practice and performance directives established by the CDC.

- NIST certified calibrated temperature control and indicating probes (optional)\*
- Accurate refrigerator temperature control, 2°C to 8°C (36°F to 46°F), factory pre-set at 5°C (41°F)
- Automatic defrost; elimination of ice and water while maintaining product temperature within specification
- Protection from inadvertent freezing in refrigerator chamber
- Independent temperature controls for refrigerator and freezer chambers
- Tight peripheral door seals
- Freezer range, -15°C to -50°C (5°F to -58°F), chambers must maintain -15°C (5°F) throughout

### PHCbi MPR Series Refrigerators and Freezers vs Domestic/Household Products

| Performance  | MPR Series   | Domestic/Household |
|--|--|--------------------|
| Meets CDC Criteria for Vaccine Safety                    | Yes  | —                  |
| Precise Temperature Setting, Digital Display             | Microprocessor Control, 0.5°C Setpoint Accuracy                      | —                  |
| Uniform Top-to-Bottom Temperature                        | Forced Airflow, ±3°C (Refrigerators), ±5°C (Freezers)                | —                  |
| Fast Temperature Recovery                                | Reserve Cooling Power  | —                  |
| Ambient Temperature Protection                           | High Performance Insulation  | —                  |
| Protection from Vaccine Freezing                         | Tight Temperature Uniformity To Protect Stored Product From Freezing | —                  |
| Design Attributes  | Specifically for Vaccine/Biological/Pharmaceutical Use               | —                  |
| Insulated Glass Door                                     | Transparent UV Screening   | —                  |
| Integrated Systems Supervision                           | Microprocessor Monitoring  | —                  |
| Deviation Alarms   | Temperature, Door Ajar   | —                  |
| Remote Alarm Terminal                                    | Standard NO/NC/C - DC 24V 2A Connection                              | —                  |
| Self-Diagnostic Functions                                | Continuous   | —                  |
| Access Ports for Independent Probes                      | Yes  | —                  |
| NIST Traceable Temperature Probe                         | Optional   | —                  |
| Automatic Defrost on Demand, Evaporator Sensor Initiated | Maintains Stored Product Temperature                                 | —                  |
| Independently Controlled Freezer Section                 | On Combo Refrigerator/Freezer Units Only                             | —                  |

\* National Institute of Standards and Technology (NIST) and the American Society for Testing and Materials (ASTM Standard).

## Standard Features Guide

All MPR Series Refrigerators, Combo Refrigerators/Freezers, and Freezers come standard with:

- CFC Free insulation
- Microprocessor temperature controller with alarms
- CFC Free refrigerants
- Highly visible digital temperature display
- Remote alarm contacts (not applicable to the TSU-4RW-N6, PR-L5181W-PA, PR-L5181GW-PA, and PF-L5181W-PA)
- Keypad lockout
- Key door lock
- Diagnostics (sensors only on TSU-4RW-N6\*, PR-L5181W-PA, PR-L5181GW-PA and PF-L5181W-PA)
- Access ports with plugs
- Leveling feet & casters (leveling feet only on TSU-4RW-N6\*, PR-L5181W-PA, PR-L5181GW-PA and PF-L5181W-PA)

## Temperature Operation and Defrost Refrigerators

- Consistent uniformity prevents vaccines from freezing
- Unique defrost system keeps refrigerator free from frost build up. Electronically monitored and initiates only when needed

## Freezers

- Freezers incorporate either forced air, cold wall or cold evaporator shelves to achieve freezing temperatures
- Freezers have either automatic or manual defrost

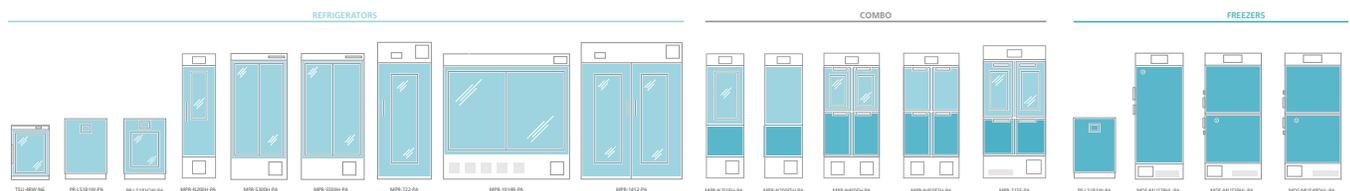
## Selection

PHCbi brand vaccine/pharmacy refrigerators and biomedical freezers are available in a variety of configurations, including undercounter and upright models with shelves. Pull-out wire baskets or pull-out solid drawers are available on select models.

## Purchasing Guide by Storage Volume

Choosing a pharmacy refrigerator or freezer is often based on storage volume needs. The below chart shows estimated storage capacities of PHCbi brand refrigerators and freezers based on standard 5 ml vials.

| Pharmacy Refrigerators                 |                               |   | Pharmacy Freezers             |   |
|--|-------------------------------|---|-------------------------------|---|
| Vial Storage Capacity                  | Cabinet Size                  | PHCbi Refrigerator Model  | Cabinet Size                  | PHCbi Freezer Model   |
| Low Volume,<br>less than 500 vials     | 3.0 cu.ft.<br>to 12.0 cu.ft.  | TSU-4RW-N6* Undercounter Refrigerator<br>PR-L5181W-PA Undercounter Refrigerator<br>PR-L5181GW-PA Undercounter Refrigerator<br>MPR-N200H-PA Refrigerator<br>MPR-N250FH-PA Combo Refrigerator/Freezer<br>MPR-N250FSH-PA Combo Refrigerator/Freezer<br>MPR-N450FH-PA Combo Refrigerator/Freezer<br>MPR-N450FSH-PA Combo Refrigerator/Freezer | 2.8 cu.ft.<br>to 12.0 cu.ft.  | PF-L5181W-PA Undercounter Freezer<br>MPR-N250FH-PA Combo Refrigerator/Freezer<br>MPR-N250FSH-PA Combo Refrigerator/Freezer<br>MPR-N450FH-PA Combo Refrigerator/Freezer<br>MPR-N450FSH-PA Combo Refrigerator/Freezer |
| Moderate Volume,<br>500 to 2,000 vials | 12.0 cu.ft.<br>to 17.3 cu.ft. | MPR-S300H-PA Refrigerator<br>MPR-715F-PA Combo Refrigerator/Freezer   | 12.0 cu.ft.<br>to 17.3 cu.ft. | MDF-MU339HL-PA Freezer<br>MDF-MU549DHL-PA Freezer   |
| Large Volume,<br>2,000 to 10,000 vials | 17.3 cu.ft.<br>to 41.1 cu.ft. | MPR-S500RH-PA Refrigerator<br>MPR-S500H-PA Refrigerator<br>MPR-722R-PA Refrigerator<br>MPR-722-PA Refrigerator<br>MPR-S1201XH-PA Refrigerator<br>MPR-S1201RXH-PA Refrigerator   | 17.3 cu.ft.<br>to 48.0 cu.ft. | MDF-MU539HL-PA Freezer<br>MDF-U731-PA Freezer<br>MDF-U731M-PA Freezer   |
| Very Large Volume,<br>10,000+ vials    | 48.0 cu.ft.                   | MPR-1412R-PA Refrigerator<br>MPR-1412-PA Refrigerator   | —                             | —   |



\* TSU-4RW-N6 is manufactured by Turbo Air Inc. and distributed by PHC Corporation of North America.

# MPR SERIES REFRIGERATORS

High Performance Biomedical Refrigerators—Swing Door Models



PHCbi brand Lab and Pharmacy Refrigerators include significant design and performance properties for storage of temperature sensitive vaccines and other pharmaceutical materials.

## Swing Door Model Features

- Swing door models include insulated glass viewing window (MPR-1412-PA, MPR-1412R-PA, MPR-722-PA, MPR-722R-PA, MPR-N200H-PA)
- Positive internal airflow maintains precise top-to-bottom temperature uniformity to protect stored product in every location within the refrigerator
- Top-mounted controls for easy access and viewing
- Interior light (except models PR-L5181W-PA and PR-L5181GW-PA)

### ALL CABINETS MEET ESSENTIAL CRITERIA FOR VACCINE AND PHARMACY USE:

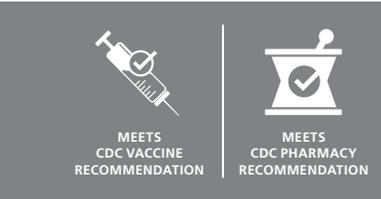
- Accuracy
- Uniformity
- Recovery
- Ambient Tolerance
- Monitoring

| Model Number  |                 | TSU-4RW-N6  | PR-L5181W-PA   | PR-L5181GW-PA           |
|---|-----------------|---|--|-------------------------|
| External Dimensions (W x D x H) nominal   | inches   mm     | 22.5 x 22.1 x 29.6   572 x 562 x 751**                            | 23.8 x 23.7 x 34.1   606 x 600 x 867                       |                         |
| Internal Dimensions (W x D x H) nominal   | inches   mm     | 18.5 x 14.6 x 18.9   471 x 370 x 480                              | 19.9 x 17.1 x 25.6   507 x 434 x 650                       |                         |
| Volume  | cu.ft.   liters | 3.0   85  | 5.0   142  |                         |
| Net Weight  | lbs.   kg       | 114   52  | 100   45   |                         |
| <b>Performance</b>  |                 |   |  |                         |
| Temperature Control Range   | °C              | +3 to +7  | +2 to +8   |                         |
| Vaccine Storage Operating Temperature   | °C              | +3 to +7  | +2 to +8   |                         |
| Factory Pre-Set Temperature   | °C              | +5  | +5   |                         |
| Highest Ambient Temperature and Maintains Cabinet Temperature   | °C              | +35   | +24  |                         |
| <b>Control</b>  |                 |   |  |                         |
| Microprocessor Controller, Adjustable   | °C              | Increments of 0.1   | Increments of 0.1  |                         |
| Digital Temperature Display   |                 | LED   | LED  |                         |
| Controller Security   |                 | Lockable with keypad  | Front panel anti-temper lockout                            |                         |
| Electronics Diagnostics   |                 | Sensors only  | Sensors only   |                         |
| <b>Refrigeration</b>  |                 |   |  |                         |
| Cooling Method Internal Airflow for Precise Temperature   |                 | Forced air  | Forced air fin and tube evaporator                         |                         |
| Defrost Method Initiated Only as Needed   |                 | Electronically monitored evaporator                               | Cycle, time actuated, temperature controlled               |                         |
| Refrigeration System  |                 | Single reciprocal type compressor                                 | Variable Speed Compressor Type Compressor                  |                         |
| Insulation  |                 | Rigid polyurethane, foamed-in-place, low GWP (cyclopentane)       | HFO foamed-in-place, SNAP compliant                        |                         |
| <b>Construction</b>   |                 |   |  |                         |
| Outer Door  | qty             | 1 - Glass, self closing   | Electro galvanized steel                                   | 1 - Glass, Self Closing |
| Interior  |                 | Painted steel with stainless steel floor                          | HFO vacuum formed plastic                                  |                         |
| Exterior  |                 | Painted steel   | White PCM galvanized steel, polyester resin baked finish   |                         |
| Outer Door Lock   |                 | Key   | Key  |                         |
| Interior Light  |                 | Yes-with control panel switch                                     | —  |                         |
| Shelves   | qty             | 2 - Adjustable, wire, vinyl coated                                | 2, Coated steel wire                                       |                         |
| Drawers   | qty             | —   | —  |                         |
| Casters   | qty             | —   | —  |                         |
| Adjustable Feet   | qty             | 4 - Leveling  | 4 - Leveling   |                         |
| Access Port   | qty             | 1 - Bottom of back of product                                     | 1- Side wall   |                         |
| Access Port Diameter  | inches   mm     | 0.6   16  | 1.2   30   |                         |
| <b>Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)</b> |                 |   |  |                         |
| High Temperature  |                 | V-B   | V-B  |                         |
| Low Temperature   |                 | V-B   | V-B  |                         |
| Door Open   |                 | V-B   | V-B  |                         |
| Diagnostics   |                 | V   | V  |                         |
| <b>Electrical and Noise Level</b>   |                 |   |  |                         |
| Power Supply  |                 | 115V, 1Ø, 60Hz, NEMA 5-15P requires 5-15R receptacle              | 115V, 60Hz, 1Ø, NEMA 5-15P, requires NEMA 5-15R receptacle |                         |
| Noise Level   | dB(A)           | <52   | <52  |                         |
| <b>Options</b>  |                 |   |  |                         |
| Black-Out Panel for Photosensitive Product  |                 | BPANELTSU*  | —  |                         |
| Stackable   |                 | TSU-4RW STKBRACKET*   | 833-0-3131-102-00  |                         |
| Data Logging and Communication Management   |                 | LabSVIFF   LabAlert® Monitoring System*   MTR420MAC*   MTR420MAL* |  |                         |

\* Manufactured by others

\*\* Exterior cabinet depth measures 23.6" (600 mm) without control panel. Add 2.2" (56 mm) for control panel/display.

| NEMA | Plug (P) | Receptacle (R) |
|------|----------|----------------|
| 5-15 |          |                |



# MPR SERIES REFRIGERATORS

## High Performance Biomedical Refrigerators—Swing Door Models

| Model Number  |                 | MPR-N200H-PA<br>(w/shelves)  | MPR-722-PA<br>(w/shelves)                               | MPR-722R-PA<br>(w/drawers)                              | MPR-1412-PA<br>(w/shelves)                              | MPR-1412R-PA<br>(w/drawers)                             |
|---|-----------------|--|---|---|---|---|
| External Dimensions (W x D x H) nominal   | inches   mm     | 18.2 x 22.9 x 68.3   460 x 580 x 1735  | 30.3 x 36.2 x 76.8   770 x 920 x 1955 <sup>1)</sup>     | 30.3 x 36.2 x 76.8   770 x 920 x 1955 <sup>1)</sup>     | 56.7 x 36.2 x 76.8   1440 x 920 x 1951 <sup>2)</sup>    | 56.7 x 36.2 x 76.8   1440 x 920 x 1951 <sup>2)</sup>    |
| Internal Dimensions (W x D x H) nominal   | inches   mm     | 14.9 x 18.75 x 52.4   380 x 477 x 1333   | 25.6 x 27.9 x 59.1   650 x 710 x 1500                   | 25.6 x 27.9 x 59.1   650 x 710 x 1500                   | 52.0 x 28.0 x 59.1   1320 x 710 x 1500                  | 52.0 x 28.0 x 59.1   1320 x 710 x 1500                  |
| Volume  | cu.ft.   liters | 7.6   218  | 24.2   684  | 23.7   671  | 48.2   1364   | 48.0   1359   |
| Net Weight  | lbs.   kg       | 141   64   | 334   174   | 425   193   | 547   248   | 633   287   |
| <b>Performance</b>  |                 |  |   |   |   |   |
| Temperature Control Range   | °C              | +2 to +14  | +2 to +23   | +2 to +23   | +2 to +23   | +2 to +23   |
| Vaccine Storage Operating Temperature   | °C              | +2 to +8   | +2 to +8  | +2 to +8  | +2 to +8  | +2 to +8  |
| Factory Pre-Set Temperature   | °C              | +5   | +5  | +5  | +5  | +5  |
| Highest Ambient Temperature and Maintains Cabinet Temperature   | °C              | +40  | +40   | +40   | +40   | +40   |
| <b>Control</b>  |                 |  |   |   |   |   |
| Microprocessor Controller, Adjustable   | °C              | Increments of 1  | Increments of 1   | Increments of 1   | Increments of 1   | Increments of 1   |
| Digital Temperature Display   |                 | OLED<br>Selectable increments of 1 or 0.1  | LED   | LED   | LED   | LED   |
| Controller Security   |                 | Lockable with keypad   | Lockable with keypad                                    | Lockable with keypad                                    | Lockable with keypad                                    | Lockable with keypad                                    |
| Electronics Diagnostics   |                 | Total control system   | Total control system                                    | Total control system                                    | Total control system                                    | Total control system                                    |
| <b>Refrigeration</b>  |                 |  |   |   |   |   |
| Cooling Method<br>Internal Airflow for Precise Temperature  |                 | Uniformity forced air  | Uniformity forced air                                   | Uniformity forced air                                   | Uniformity forced air                                   | Uniformity forced air                                   |
| Defrost Method Initiated Only as Needed   |                 | Electronically monitored evaporator  | Electronically monitored evaporator                     | Electronically monitored evaporator                     | Electronically monitored evaporator                     | Electronically monitored evaporator                     |
| Refrigeration System  |                 | Air cooled, CFC free   | Air cooled, CFC free                                    | Air cooled, CFC free                                    | Air cooled, CFC free                                    | Air cooled, CFC free                                    |
| Insulation  |                 | CFC free urethane  | CFC free urethane                                       | CFC free urethane                                       | CFC free urethane                                       | CFC free urethane                                       |
| <b>Construction</b>   |                 |  |   |   |   |   |
| Outer Door  | qty             | 1- With insulated glass  | 1- With insulated glass                                 | 1- With insulated glass                                 | 2- With insulated glass                                 | 2- With insulated glass                                 |
| Interior  |                 | ABS Resin  | Zinc galvanized steel, acrylic finish                   |
| Exterior  |                 | Colored Steel  | Zinc galvanized steel, acrylic finish                   |
| Outer Door Lock   |                 | Key  | Key   | Key   | Key   | Key   |
| Interior Light  |                 | Yes-with control panel switch  | Yes-with control panel switch                           | Yes-with control panel switch                           | Yes-with control panel switch                           | Yes-with control panel switch                           |
| Shelves   | qty             | 4- Adjustable, wire  | 4- Adjustable, wire                                     | —   | 8- Adjustable, wire                                     | —   |
| Drawers   | qty             | —  | —   | 5- Solid  | —   | 10- Solid   |
| Casters   | qty             | 2- Swivel; 2- fixed  | 2- Swivel; 2- fixed                                     | 2- Swivel; 2- fixed                                     | 2- Swivel; 2- fixed                                     | 2- Swivel; 2- fixed                                     |
| Adjustable Feet   | qty             | 2- Front of base;<br>for securing unit in place  | 2- Front of base;<br>for securing unit in place         | 2- Front of base;<br>for securing unit in place         | 2- Front of base;<br>for securing unit in place         | 2- Front of base;<br>for securing unit in place         |
| Access Port   | qty             | 1 Rear   | 3; 1 left, 1 right, 1 top                               |
| Access Port Diameter  | inches   mm     | 1.2   30   | 1.2   30  | 1.2   30  | 1.2   30  | 1.2   30  |
| <b>Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)</b> |                 |  |   |   |   |   |
| Power Failure   |                 | R(V-B optional)  | R(V-B optional)   | R(V-B optional)   | R(V-B optional)   | R(V-B optional)   |
| High Temperature  |                 | V-B-L-R-A  | V-B-R   | V-B-R   | V-B-R   | V-B-R   |
| Low Temperature   |                 | V-B-L-R-A  | V-B-R   | V-B-R   | V-B-R   | V-B-R   |
| Door Open   |                 | V-B  | V-B   | V-B   | V-B   | V-B   |
| Remote Alarm Contacts   |                 | Normally open, normally closed, common   | Normally open, normally closed, common                  | Normally open, normally closed, common                  | Normally open, normally closed, common                  | Normally open, normally closed, common                  |
| Remote Alarm Output   |                 | DC 24V 2A  | DC 24V 2A   | DC 24V 2A   | DC 24V 2A   | DC 24V 2A   |
| <b>Electrical and Noise Level</b>   |                 |  |   |   |   |   |
| Power Supply  |                 | 15V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle   | 115V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle | 115V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle | 115V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle | 115V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle |
| Noise Level   | dB(A)           | 40   | 48  | 48  | 48  | 48  |
| <b>Options</b>  |                 |  |   |   |   |   |
| Black-Out Panel for Photosensitive Product  |                 | 1- Optional  | 1- Optional   | 1- Optional   | 2- Optional   | 2- Optional   |
| Data Logging and Communication Management   |                 | LabSVIFT <sup>3)</sup>   MTR-420MA-PW   LabAlert <sup>®</sup> Monitoring System <sup>™</sup>   MTR420MAC <sup>™</sup>   MTR420MAL <sup>™</sup> |   |   |   |   |

<sup>1)</sup> Consult product sales rep for doorway entry instructions, less than 36.2".

<sup>2)</sup> Consult product web page for doorway entry instructions, less than 36.2": [www.phcd.com/us/biomedical/preservation/pharmaceutical-refrigerators/mpr-1412](http://www.phcd.com/us/biomedical/preservation/pharmaceutical-refrigerators/mpr-1412)

<sup>3)</sup> LabSVIFT available in USA only.

\* Manufactured by others

# MPR SERIES REFRIGERATORS

High Performance Biomedical Refrigerators—Sliding Door Models



MPR-S300H-PA

MPR-S500H-PA  
MPR-S500RH-PA

MPR-S1201XH-PA  
MPR-S1201RXH-PA

## Sliding Door Model Features

- Tinted, insulated glass with reflective coating sliding doors
- Unique slim line, front to back design. These models are ideal where lab and aisle space is limited
- Full view glass to observe stored product for inventory control
- Back wall plenum provides horizontal airflow for maintaining precise top-to-bottom temperature uniformity to protect stored product in every location within the refrigerator
- Horizontal airflow allows maximum shelf loading
- Interior LED lighting

## PURPOSE DESIGNED REFRIGERATORS FOR VACCINE STORAGE:

- Internal air plenum for reliable temperature accuracy and uniformity even when shelves and pull-out wire shelves are fully loaded
- Installation made easy with slim line design for easy access through doorways
- Stainless steel interior—easy to clean and corrosion resistant
- Easy access to inventory with pull-out wire baskets

| Model Number   |                 | MPR-S300H-PA  |
|--|-----------------|---|
| External Dimensions (W x D x H) nominal  | inches   mm     | 31.5 x 19.7 x 71.7   800 x 500 x 1820   |
| Internal Dimensions (W x D x H) nominal  | inches   mm     | 28.3 x 14.2 x 56.1   720 x 360 x 1425   |
| Volume   | cu.ft.   liters | 12.2   345  |
| Net Weight   | lbs.   kg       | 229   104   |
| Performance  |                 |   |
| Temperature Control Range  | °C              | +2 to +14   |
| Vaccine Storage Operating Temperature  | °C              | +2 to +8  |
| Factory Pre-Set Temperature  | °C              | +5  |
| Highest Ambient Temperature and Maintains Cabinet Temperature                                  | °C              | +35   |
| Control  |                 |   |
| Microprocessor Controller, Adjustable  | °C              | Increments of 0.1 - door mounted  |
| Digital Temperature Display  |                 | White graphic OLED  |
| Controller Security  |                 | Lockable with keypad  |
| Electronics Diagnostics  |                 | Total control system  |
| Refrigeration  |                 |   |
| Cooling Method   |                 | Fan forced air circulation  |
| Internal Airflow for Precise Temperature   |                 | Electronically actuated cycle defrost   |
| Defrost Method Initiated Only as Needed  |                 | Electronically actuated cycle defrost   |
| Refrigeration System   | qty             | 1- Air cooled SNAP approved (R-600a)  |
| Insulation   |                 | CFC/HFC free  |
| Construction   |                 |   |
| Outer Door   | qty             | 2- (Highly insulated glass door with tempered glass)  |
| Interior   |                 | Painted steel   |
| Exterior   |                 | Painted steel   |
| Outer Door Lock  |                 | Key   |
| Interior Light   |                 | LED   |
| Shelves  | qty             | 6- Coated steel wires   |
| Baskets  | qty             | —   |
| Casters  | qty             | 2- Swivel, 2- fixed   |
| Adjustable Feet  | qty             | 2- Front of base; for securing unit in place  |
| Access Port  | qty             | 1- Side wall  |
| Access Port Diameter   | inches   mm     | 1.2   30  |
| Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged) |                 |   |
| Power Failure  |                 | (B-M-R optional)  |
| High Temperature   |                 | V-B-M-R   |
| Low Temperature  |                 | V-B-M-R   |
| Door Open  |                 | V-B-M   |
| Remote Alarm Contacts, Optional  |                 | Normally open, normally closed, common  |
| Remote Alarm Output, Optional  |                 | DC 24V 2A   |
| Electrical and Noise Level   |                 |   |
| Power Supply   |                 | 115V, 1Ø, 60Hz, NEMA 5-15P requires 5-15R receptacle  |
| Noise Level  | dB(A)           | 38  |
| Options  |                 |   |
| Black-Out Panel for Photosensitive Product   |                 | BPANELS300  |
| Data Logging and Communication Management  |                 | LabSVIFT <sup>®</sup>   MTR-420MA-PW   LabAlert <sup>®</sup> Monitoring System*   MTR420MAC*   MTR420MAL* |

<sup>1)</sup> LabSVIFT available in USA only.

\* Manufactured by others



| NEMA | Plug (P) | Receptacle (R) |
|------|----------|----------------|
| 5-15 |          |                |

# MPR SERIES REFRIGERATORS

## High Performance Biomedical Refrigerators—Sliding Door Models

| Model Number  |                 | MPR-S500H-PA<br>(w/shelves)   | MPR-S500RH-PA<br>(w/shelves & baskets)                     | MPR-1201RXH-PA<br>(w/shelves & baskets)              | MPR-1201XH-PA<br>(w/shelves)                         |
|---|-----------------|---|--|--|--|
| External Dimensions (W x D x H) nominal   | inches   mm     | 35.4 x 25.5 x 71.8   900 x 650 x 1824   | 35.4 x 25.5 x 71.8   900 x 650 x 1824                      | 70.9 x 25.6 x 71.8   1800 x 650 x 1824               | 70.9 x 25.6 x 71.8   1800 x 650 x 1824               |
| Internal Dimensions (W x D x H) nominal   | inches   mm     | 31.4 x 20.0 x 56.1   800 x 510 x 1425   | 31.4 x 20.0 x 56.1   800 x 510 x 1425                      | 66.9 x 20.1 x 56.1   1700 x 510 x 1425               | 66.9 x 20.1 x 56.1   1700 x 510 x 1425               |
| Volume  | cu.ft.   liters | 19.5   554  | 19.4   550   | 40.8   1155  | 41.1   1165  |
| Net Weight  | lbs.   kg       | 300   139   | 320   145  | 611   277  | 585   265  |
| <b>Performance</b>  |                 |   |  |  |  |
| Temperature Control Range   | °C              | +2 to +14   | +2 to +14  | +2 to +14  | +2 to +14  |
| Vaccine Storage Operating Temperature   | °C              | +2 to +8  | +2 to +8   | +2 to +8   | +2 to +8   |
| Factory Pre-Set Temperature   | °C              | +5  | +5   | +5   | +5   |
| Highest Ambient Temperature and Maintains Cabinet Temperature   | °C              | +35   | +35  | +35  | +35  |
| <b>Control</b>  |                 |   |  |  |  |
| Microprocessor Controller, Adjustable   | °C              | Increments of 0.1   | Increments of 0.1  | Increments of 0.1                                    | Increments of 0.1                                    |
| Digital Temperature Display   |                 | White graphic OLED  | White graphic OLED   | White graphic OLED                                   | White graphic OLED                                   |
| Controller Security   |                 | Lockable with keypad  | Lockable with keypad                                       | Lockable with keypad                                 | Lockable with keypad                                 |
| Electronics Diagnostics   |                 | Total control system  | Total control system                                       | Total control system                                 | Total control system                                 |
| <b>Refrigeration</b>  |                 |   |  |  |  |
| Cooling Method Internal Airflow for Precise Temperature   |                 | Fan forced air circulation  | Fan forced air circulation                                 | Fan forced air circulation                           | Fan forced air circulation                           |
| Defrost Method Initiated Only as Needed   |                 | Electronically actuated cycle defrost   | Electronically actuated cycle defrost                      | Electronically actuated cycle defrost                | Electronically actuated cycle defrost                |
| Refrigeration System  |                 | SNAP approved (R-600A), 45 g  | SNAP approved (R-600A), 45 g                               | 1- Air cooled, SNAP approved (R-513a)                | 1- Air cooled, SNAP approved (R-513a)                |
| Insulation  |                 | PUF (rigid polyurethane foamed insulation)  | PUF (rigid polyurethane foamed insulation)                 | CFC free urethane                                    | CFC free urethane                                    |
| <b>Construction</b>   |                 |   |  |  |  |
| Outer Door  | qty             | 2 (Highly insulated glass door with tempered glass)   | 2 (Highly insulated glass door with tempered glass)        | 2 (Highly insulated multi pane tempered glass)       | 2 (Highly insulated multi pane tempered glass)       |
| Interior  |                 | Painted steel   | Painted steel  | Painted steel  | Painted steel  |
| Exterior  |                 | Painted steel   | Painted steel  | Painted steel  | Painted steel  |
| Outer Door Lock   |                 | Included  | Included   | Included   | Included   |
| Interior Light  |                 | LED   | LED  | LED  | LED  |
| Shelves   | qty             | 6 (Adjustable, wire) full width   | 6 (Adjustable, wire) left side                             | 6 (Adjustable, wire) left side                       | 12 (Adjustable, wire) 6 left side, 6 right           |
| Baskets   | qty             | —   | 5 - Wire   | 10- Wire- right side                                 | -  |
| Casters   | qty             | 4 (2 Leveling feet)   | 4 (2 Leveling feet)  | 6  | 6  |
| Adjustable Feet   | qty             | 2- Front of base; for securing unit in place  | 2- Front of base; for securing unit in place               | 3- Front of base; for securing unit in place         | 3- Front of base; for securing unit in place         |
| Access Port   | qty             | (1) Standard  | (1) Standard   | 3 - Back (right middle, right bottom, left middle)   | 3 - Back (right middle, right bottom, left middle)   |
| Access Port Diameter  | inches   mm     | 1.2   30  | 1.2   30   | 1.2   30   | 1.2   30   |
| <b>Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)</b> |                 |   |  |  |  |
| Power Failure   |                 | R (V-B-M optional)  | R (V-B-M optional)   | R (V-B optional)                                     | R (V-B optional)                                     |
| High Temperature  |                 | V-B-M-R   | V-B-M-R  | V-B-R  | V-B-R  |
| Low Temperature   |                 | V-B-M-R   | V-B-M-R  | V-B-R  | V-B-R  |
| Door Open   |                 | V-B-M   | V-B-M  | V-B  | V-B  |
| Remote Alarm Contacts, Optional   |                 | Normally open, normally closed, common  | Normally open, normally closed, common                     | Normally open, normally closed, common               | Normally open, normally closed, common               |
| Remote Alarm Output, Optional   |                 | DC 24V 2A   | DC 24V 2A  | DC 24V 2A  | DC 24V 2A  |
| <b>Electrical and Noise Level</b>   |                 |   |  |  |  |
| Power Supply  |                 | 115V, 60Hz, 10, NEMA 5-15P, requires NEMA 5-15R receptacle  | 115V, 60Hz, 10, NEMA 5-15P, requires NEMA 5-15R receptacle | 115V, 10, 60Hz, NEMA 5-15P requires 5-15R receptacle | 115V, 10, 60Hz, NEMA 5-15P requires 5-15R receptacle |
| Noise Level   | dB(A)           | 42  | 42   | 42   | 42   |
| <b>Options</b>  |                 |   |  |  |  |
| Black-Out Panel for Photosensitive Product  |                 | BPANELS500  | BPANELS500   | BPANELS1201  | BPANELS1201  |
| Data Logging and Communication Management   |                 | LabSVIFT <sup>1)</sup>   MTR-420MA-PW   LabAlert® Monitoring System <sup>1)</sup>   MTR420MAC <sup>1)</sup>   MTR420MAL <sup>1)</sup> |  |  |  |

<sup>1)</sup> LabSVIFT available in USA only.

# MPR SERIES COMBO REFRIGERATORS/FREEZERS

High Performance Biomedical Combo Refrigerator/Freezer



MPR-N250FH-PA  
MPR-N250FSH-PA

MPR-N450FH-PA  
MPR-N450FSH-PA

MPR-715F-PA

Combo Refrigerator/Freezer cabinets are popular for installations where space is limited. Both refrigeration and freezer functions are self-contained and independently controlled in separate compartments with individual doors.

## Refrigerator Features

- Includes insulated glass viewing window
- Positive internal airflow maintains precise top-to-bottom temperature uniformity to protect stored product in every location within the refrigerator

## Freezer Features

- Cold wall cooling system
- Manual defrost

## MULTIPURPOSE, SPACE EFFICIENT, HIGH PERFORMANCE:

- Slim line cabinet design
- Single cabinet with two independent temperature controlled chambers
- Each chamber has its own refrigeration and control system
- Cost effective storage of refrigerated and frozen vaccines

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| Model Number  |                 | MPR-N250FH-PA<br>refrigerator / freezer                                      | MPR-N250FSH-PA<br>refrigerator / freezer                          |
|---|-----------------|--|---|
| External Dimensions (W x D x H) nominal   | inches   mm     | 20 x 25.1 x 71.2   510 x 640 x 1810  |   |
| Internal Dimensions (W x D x H) nominal   | inches   mm     | 16.9 x 20.3 x 35.5   430 x 516 x 903<br>15.3 x 19.7 x 16.2   390 x 501 x 413 |   |
| Volume  | cu.ft.   liters | 6.3   179 / 2.8   80   |   |
| Net Weight  | lbs.   kg       | 210   95   | 200   91  |
| Chambers  | qty             | 1- Top / 1- Lower  |   |
| <b>Performance</b>  |                 |  |   |
| Temperature Control Range   | °C              | +2 to +14 (max +2) / -30 to -20 (max -30)                                    |   |
| Vaccine Storage Operating Temperature   | °C              | +2 to +8 / -15 or Colder   |   |
| Factory Pre-Set Temperature   | °C              | +2 to +14 / -30 to -20   |   |
| Highest Ambient Temperature and Maintains Cabinet Temperature   | °C              | +35  |   |
| <b>Control</b>  |                 |  |   |
| Microprocessor Controller, Adjustable   | °C              | Increments of 1 - independently controls refrigerator & freezer              |   |
| Digital Temperature Display   |                 | White graphic OLED<br>Selectable increments of 1 or 0.1                      |   |
| Controller Security   |                 | Lockable with keypad   |   |
| Electronics Diagnostics   |                 | Total control system   |   |
| <b>Refrigeration</b>  |                 |  |   |
| Cooling Method  |                 | Forced air / Direct cold wall cooling  |   |
| Internal Airflow for Precise Temperature  |                 |  |   |
| Defrost Method  |                 | Electronically actuated cycle defrost / Manual                               |   |
| Refrigeration System  | qty             | 2- Independent air cooled, CFC free  |   |
| Insulation  |                 | Polyurethane foam-in-place, CFC free   |   |
| <b>Construction</b>   |                 |  |   |
| Outer Door  | qty             | 1- Insulated, glass<br>1- Solid  | 2- Solid  |
| Interior  |                 | Colored steel / ABS resin (REF)   Painted steel (FRZ)                        |   |
| Exterior  |                 | Colored steel / ABS resin (REF)   Painted steel (FRZ)                        |   |
| Outer Door Lock   | qty             | 1- Key, locks both top and bottom  |   |
| Interior Light  | qty             | 1- LED, control panel switch / 0   |   |
| Shelves   | qty             | (3) Tempered glass, adjustable / (1) PE coated wire                          |   |
| Casters   | qty             | 4 (Plus 2 leveling feet on front base)                                       |   |
| Adjustable Feet   | qty             | 2- Front of base, for securing unit in place                                 |   |
| Access Port   | qty             | (1) Back wall, left 1.2   30<br>(1) Lower back middle 1.2   30               |   |
| Access Port Diameter  | inches   mm     | 1.2   30 / 1.2   30  |   |
| <b>Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)</b> |                 |  |   |
| Power Failure   |                 | R (V-B-M-L optional)   |   |
| High Temperature  |                 | V-B-R-A-D-L  |   |
| Low Temperature   |                 | V-B-R-A-D-L  |   |
| Door Open   |                 | V-B-A-D-L  |   |
| Remote Alarm Contacts   |                 | Yes  |   |
| Remote Alarm Output   |                 | DC 24V 2A  |   |
| <b>Electrical and Noise Level</b>   |                 |  |   |
| Power Supply  |                 | 115V, 60Hz, 1Ø, NEMA 5-15P<br>requires NEMA 5-15R receptacle                 |   |
| Noise Level   | dB(A)           | 40   |   |
| <b>Options</b>  |                 |  |   |
| Black-Out Panel for Photosensitive Product  |                 | MPR-25BP-PW  | —   |
| Data Logging and Communication Management   |                 | LabSVIFT <sup>1)</sup>   MTR-420MA-PW   MTR420MAC <sup>*</sup>               | LabAlert® Monitoring System <sup>*</sup>   MTR420MAL <sup>*</sup> |

<sup>1)</sup> LabSVIFT available in USA only.

<sup>\*</sup> Manufactured by others



MEETS  
CDC VACCINE  
RECOMMENDATION



MEETS  
CDC PHARMACY  
RECOMMENDATION

| NEMA | Plug (P) | Receptacle (R) |
|------|----------|----------------|
| 5-15 |          |                |

# MPR SERIES COMBO REFRIGERATORS/FREEZERS

## High Performance Biomedical Combo Refrigerator/Freezer

| Model Number  |                 | MPR-N450FH-PA<br>refrigerator / freezer   | MPR-N450FSH-PA<br>refrigerator / freezer   | MPR-715F-PA**<br>refrigerator / freezer   |
|---|-----------------|---|--|---|
| External Dimensions (W x D x H) nominal   | inches   mm     | 31.9 x 25.2 x 72.4   810 x 640 x 1838   | 31.9 x 25.2 x 72.4   810 x 640 x 1838  | 31.9 x 25.2 x 72.4   810 x 640 x 1838   |
| Internal Dimensions (W x D x H) nominal   | inches   mm     | 28.3 x 20.3 x 35.9   720 x 516 x 913<br>26.8 x 18.5 x 16.3   680 x 470 x 415  | 28.3 x 20.3 x 35.9   720 x 516 x 913<br>26.8 x 18.5 x 16.3   680 x 470 x 415   | 31.9 x 24.2 x 35.2   810 x 615 x 894<br>15.1 x 21.7 x 16.6   385 x 552 x 422 (each chamber)               |
| Volume  | cu.ft.   liters | 11.5   326 / 4.8   136  | 11.5   326 / 4.8   136   | 14.7   415 / 6.2   176  |
| Net Weight  | lbs.   kg       | 284   129   | 266   121  | 357   162   |
| Chambers  | qty             | 1-Top / 1-Lower   | 1-Top / 1-Lower  | 1-Top / 2-Lower   |
| <b>Performance</b>  |                 |   |  |   |
| Temperature Control Range   | °C              | +2 to +14 / -30 to -20  | +2 to +14 / -30 to -20   | +2 to +14 / -15 to -35  |
| Vaccine Storage Operating Temperature   | °C              | +2 to +8 / -15 or Colder  | +2 to +8 / -15 or Colder   | +2 to +8 / -15 or Colder  |
| Factory Pre-Set Temperature   | °C              | +5 / -20  | +5 / -20   | +5 / -30  |
| Highest Ambient Temperature and Maintains Cabinet Temperature   | °C              | +30   | +30  | +30   |
| <b>Control</b>  |                 |   |  |   |
| Microprocessor Controller, Adjustable   | °C              | Increments of 1 - independently controls refrigerator & freezer   | Increments of 1 - independently controls refrigerator & freezer  | Increments of 1 - independently controls refrigerator & freezer   |
| Digital Temperature Display   |                 | Select refrigerator, freezer or concurrent  | Select refrigerator, freezer or concurrent   | LED   |
| Controller Security   |                 | Lockable with keypad  | Lockable with keypad   | Lockable with keypad  |
| Electronics Diagnostics   |                 | Total control system  | Total control system   | Sensors only  |
| <b>Refrigeration</b>  |                 |   |  |   |
| Cooling Method<br>Internal Airflow for Precise Temperature  |                 | Forced air / Direct cold wall cooling   | Forced air / Direct cold wall cooling  | Forced air / Direct cold wall cooling   |
| Defrost Method Initiated Only as Needed   |                 | Electronically actuated cycle defrost / Manual  | Electronically actuated cycle defrost / Manual   | Automatic* / Manual   |
| Refrigeration System  |                 | 2- Independent air cooled, CFC free   | 2- Independent air cooled, CFC free  | 2- Independent air cooled, CFC free   |
| Insulation  |                 | CFC free urethane   | CFC free urethane  | CFC free urethane   |
| <b>Construction</b>   |                 |   |  |   |
| Outer Door  | qty             | 2-Top, bi-parting with insulated glass / 2-Solid  | 2-Top, solid bi-parting / 2-Solid  | 2- Top, bi-parting with insulated glass / 2-Solid   |
| Interior  |                 | Painted steel / ABS resin   | Painted steel / ABS resin  | Painted steel / Painted steel   |
| Exterior  |                 | Painted steel   | Painted steel  | Painted steel   |
| Outer Door Lock   |                 | 1-Key, center right, locks upper left and right doors<br>1-Key, lower center right, locks lower left and right doors                  | 1-Key, center right, locks upper left and right doors<br>1-Key, lower center right, locks lower left and right doors | 1-Key, center left, locks top left and lower left<br>1-Key, center right, locks top right and lower right |
| Interior Light  |                 | 1-LED, control panel switch / 0   | 1-LED, control panel switch / 0  | 1-LED, control panel switch / 0   |
| Shelves   | qty             | (3) Tempered glass, adjustable / 2-PE Coated wire   | (3) Tempered glass, adjustable / 2-PE Coated wire  | (3) Adjustable, wire / (2) Wire   |
| Casters   | qty             | 2- Swivel; 2- fixed   | 2- Swivel; 2- fixed  | 2- Swivel; 2- fixed   |
| Adjustable Feet   | qty             | 2- Front of base; for securing unit in place  | 2- Front of base;<br>for securing unit in place  | 2- Front of base;<br>for securing unit in place   |
| Access Port   | qty             | 1- Back wall, left / 1- Lower back middle   | 1- Back wall, left / 1- Lower back middle  | 2- Side wall, left top and bottom / 0   |
| Access Port Diameter  | inches   mm     | 1.2   30 1.2   30   | 1.2   30 1.2   30  | 1.2   30  |
| <b>Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)</b> |                 |   |  |   |
| Power Failure   |                 | R (V-B-M-L optional)  | R (V-B-M-L optional)   | R (V-B optional)  |
| High Temperature  |                 | V-B-M-R-L   | V-B-M-R-L  | V-B-R   |
| Low Temperature   |                 | V-B-M-R-L   | V-B-M-R-L  | V-B-R   |
| Door Open   |                 | V-B-M-L   | V-B-M-L  | V-B   |
| Remote Alarm Contacts   |                 | Normally open, normally closed, common  | Normally open, normally closed, common   | Normally open, normally closed, common  |
| Remote Alarm Output   |                 | DC 24V 2A   | DC 24V 2A  | DC 24V 2A   |
| <b>Electrical and Noise Level</b>   |                 |   |  |   |
| Power Supply  |                 | 115V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle   | 115V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle  | 115V, 10, 60Hz, NEMA 5-15P<br>requires 5-15R receptacle   |
| Noise Level   | dB(A)           | 41  | 41   | 43  |
| <b>Options</b>  |                 |   |  |   |
| Black-Out Panel for Photosensitive Product  |                 | MPR-458P-PW   | —  | MPR-258P-PW x 2   |
| Data Logging and Communication Management   |                 | LabSVIFT <sup>1)</sup>   MTR-420MA-PW   LabAlert® Monitoring System <sup>1)</sup>   MTR420MAC <sup>1)</sup>   MTR420MAL <sup>1)</sup> |  |   |

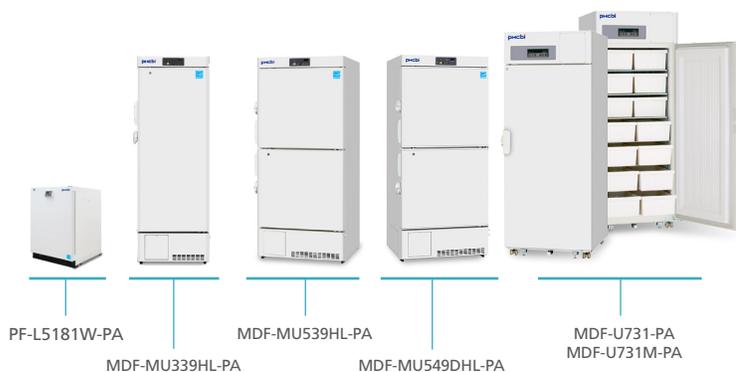
<sup>1)</sup> LabSVIFT available in USA only.

\* Manufactured by others

\*\* Minor refrigerator uniformity deviation falls outside CDC parameters for vaccine storage. This cabinet is ideal for general pharmacy use.

# MDF SERIES FREEZERS

High Performance -15°C, -30°C and -40°C Biomedical Freezers



PHCbi brand Biomedical Freezers include design and performance properties for storage of pharmaceuticals and biomedical materials that require freezing temperatures for long-term storage at -15°C to -40°C (-5°F to -104°F).

## Freezer Features

Select from 5.0 to 24.4 cu.ft. storage capacities. Freezer temperature achieved through:

- Cold wall design\*
- Forced air\*
- Cold evaporator shelf design\*
- Unique double door freezer
- Minimizes cold air loss during door opening
- Quick temperature recovery after door opening

\* Method of achieving temperature depends on the model

## FOR BULK STORAGE OF FROZEN PHARMACEUTICALS:

- Cold wall design and shelf evaporator require manual defrost
- Unit cooler with fan and electronic automatic defrost
- Cabinet temperature increase is minimal during automatic defrost
- Straight line, constant temperature achieved with cold wall or shelf evaporator cooling

| Model Number  |                 | PF-L5181W-PA  | MDF-MU339HL-PA   |
|---|-----------------|---|--|
| External Dimensions (W x D x H) nominal   | inches   mm     | 23.8 x 23.7 x 34.1   606 x 600 x 867  | 24.3 x 30.3 x 70.9   616 x 770 x 1802                        |
| Internal Dimensions (W x D x H) nominal   | inches   mm     | 19.9 x 17.1 x 25.6   507 x 434 x 650  | 18.6 x 24.2 x 49.7   472 x 614 x 1262                        |
| Volume  | cu.ft.   liters | 5.0   142   | 13.0   369   |
| Net Weight  | lbs.   kg       | 100   45  | 269   122  |
| <b>Performance</b>  |                 |   |  |
| Temperature Control Range   | °C              | -15 to -25  | -20 to -30   |
| Vaccine Storage Operating Temperature   | °C              | -15 or Colder   | -15 or Colder  |
| Factory Pre-Set Temperature   | °C              | -20   | -30  |
| Highest Ambient Temperature and Maintains Cabinet Temperature   | °C              | +22   | +35  |
| <b>Control</b>  |                 |   |  |
| Microprocessor Controller, Adjustable   | °C              | Increments of 1   | Increments of 1  |
| Digital Temperature Display   |                 | LED   | White graphic OLED   |
| Controller Security   |                 | Lockable with keypad  | Lockable with keypad   |
| Electronics Diagnostics   |                 | Sensors only  | Total control system   |
| <b>Refrigeration</b>  |                 |   |  |
| Cooling Method  |                 | Direct contact evaporator shelving with fan   | Cold wall  |
| Defrost Method  |                 | Manual  | Manual   |
| Refrigeration System  |                 | 1- Air cooled, environmentally friendly natural refrigerant, inverter driven compressor   | 1- Air cooled, environmentally friendly natural refrigerants |
| Insulation  |                 | HFO foamed-in-place, low GWP  | Rigid polyurethane, foamed-in-place, low GWP                 |
| <b>Construction</b>   |                 |   |  |
| Outer Door  | qty             | 1- Solid  | 1- Solid   |
| Interior  |                 | HFO vacuum formed plastic   | Painted steel  |
| Exterior  |                 | White PCM galvanized steel, polyester resin baked finish  | Painted steel  |
| Outer Door Lock   |                 | 1 door lock, top mounted with 2 keys  | Key  |
| Additional Door Lock  | qty             | Hasp for pad lock, e-lock   | Hasp for pad lock  |
| Shelves   | qty             | 3, Coated steel wire  | 6- (5 Adjustable), vinyl coated wire                         |
| Bins  | qty             | Optional  | Optional   |
| Casters   | qty             | —   | 2- Swivel; 2- fixed  |
| Adjustable Feet   | qty             | 4 - Leveling  | 2- Front of base; for securing unit in place                 |
| Access Port   | qty             | 1- Right wall, (facing unit)  | 1- Back wall, left hand corner (facing unit)                 |
| Access Port Diameter  | inches   mm     | 1.2   30  | 1.2   30   |
| <b>Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)</b> |                 |   |  |
| Power Failure   |                 | —   | V-B-R  |
| High Temperature  |                 | V (immediate), B (15 minute delay)  | V-B-R  |
| Low Temperature   |                 | V (immediate), B (15 minute delay)  | V-B-R  |
| Door Open   |                 | V-B   | —  |
| Remote Alarm Contacts   |                 | Normal open, normal closed, common  | Normal open, normal closed, common                           |
| Remote Alarm Output   |                 | DC 24V 2A   | DC 24V 2A  |
| <b>Electrical and Noise Level</b>   |                 |   |  |
| Power Supply  |                 | 115V, 60Hz, 1Ø, NEMA 5-15P, requires NEMA 5-15R receptacle  | 115V, 1Ø, 60Hz, NEMA 5-15P requires 5-15R receptacle         |
| Noise Level   | dB(A)           | 42  | 42   |
| <b>Options</b>  |                 |   |  |
| Stackable   |                 | 833-0-3131-102-00   | —  |
| Data Logging and Communication Management   |                 | LabSVIFT <sup>1)</sup>   MTR-420MA-PW <sup>2)</sup>   LabAlert <sup>®</sup> Monitoring System <sup>1)</sup>   MTR420MAC <sup>1)</sup>   MTR420MAL <sup>1)</sup> |  |

<sup>1)</sup> LabSVIFT available in USA only.

<sup>2)</sup> MTR-420MA-PW is not compatible with PF-L5181W-PA.

\* Manufactured by others



MEETS  
CDC VACCINE  
RECOMMENDATION



MEETS  
CDC PHARMACY  
RECOMMENDATION

| NEMA | Plug (P) | Receptacle (R) |
|------|----------|----------------|
| 5-15 |          |                |

# MDF SERIES FREEZERS

## High Performance Biomedical Freezers

| Model Number  |                 | MDF-MU539HL-PA   | MDF-MU549DHL-PA  | MDF-U731-PA  | MDF-U731M-PA   |
|---|-----------------|--|--|--|--|
| External Dimensions (W x D x H) nominal   | inches   mm     | 31.2 x 30.3 x 70.9   793 x 770 x 1802  | 31.2 x 30.3 x 70.9   793 x 770 x 1802                            | 30.3 x 32.7 x 77   770 x 830 x 1955                  | 30.3 x 32.7 x 77   770 x 830 x 1955                  |
| Internal Dimensions (W x D x H) nominal   | inches   mm     | 25.6 x 24.2 x 49.7   649 x 614 x 1262  | 25.6 x 24.2 x 23.6   649 x 614 x 600 (each chamber)              | 25.6 x 27.6 x 53.9   650 x 700 x 1370                | 25.6 x 27.6 x 59.8   650 x 700 x 1520                |
| Volume  | cu.ft.   liters | 17.8   504   | 16.9   479 (total); 8.46   239.5 (each chamber)                  | 22.0   623   | 24.4   690   |
| Net Weight  | lbs.   kg       | 317.5   144  | 363.8   165  | 342   155  | 335   152  |
| <b>Performance</b>  |                 |  |  |  |  |
| Temperature Control Range   | °C              | -20 to -30   | -20 to -40   | -15 to -30   | -18 to -30   |
| Vaccine Storage Operating Temperature   | °C              | -15 or Colder  | -15 or Colder  | -15 or Colder  | -15 or Colder  |
| Factory Pre-Set Temperature   | °C              | -30  | -40  | -30  | -30  |
| Highest Ambient Temperature and Maintains Cabinet Temperature   | °C              | +35  | +35  | +35  | +35  |
| <b>Control</b>  |                 |  |  |  |  |
| Microprocessor Controller, Adjustable   | °C              | Increments of 1  | Increments of 1  | Increments of 1                                      | Increments of 1                                      |
| Digital Temperature Display   |                 | White graphic OLED   | White graphic OLED   | LED  | LED  |
| Controller Security   |                 | Lockable with keypad   | Lockable with keypad   | Lockable with keypad                                 | Lockable with keypad                                 |
| Electronics Diagnostics   |                 | Total control system   | Total control system   | Total control system                                 | Total control system                                 |
| <b>Refrigeration</b>  |                 |  |  |  |  |
| Cooling Method  |                 | Cold wall  | Cold wall  | Forced air   | Cold wall  |
| Defrost Method  |                 | Manual   | Manual   | Automatic  | Manual   |
| Refrigeration System  |                 | 1- Air cooled, environmentally friendly natural refrigerants                                   | 1- Air cooled, environmentally friendly natural refrigerants     | 1- Air cooled, CFC free                              | 1- Air cooled, CFC free                              |
| Insulation  |                 | Rigid polyurethane, foamed-in-place, low GWP   | Rigid polyurethane, foamed-in-place, low GWP                     | CFC free urethane                                    | CFC free urethane                                    |
| <b>Construction</b>   |                 |  |  |  |  |
| Outer Door  | qty             | 2- Solid   | 2- Solid   | 1- Solid   | 1- Solid   |
| Interior  |                 | Painted steel  | Painted steel  | Styrene resin  | Styrene resin  |
| Exterior  |                 | Painted steel  | Painted steel  | Zinc galvanized steel, acrylic finish                | Zinc galvanized steel, acrylic finish                |
| Outer Door Lock   |                 | Key  | Key  | Key  | Key  |
| Additional Door Lock  | qty             | Hasp for pad lock  | Hasp for pad lock  | Hasp for pad lock                                    | Hasp for pad lock                                    |
| Shelves   | qty             | 6- (5 Adjustable), vinyl coated wire   | 6- (4 Adjustable), vinyl coated wire                             | 4- Adjustable, wire                                  | 4- Adjustable, wire                                  |
| Bins  | qty             | Optional   | Optional   | Optional   | Optional   |
| Casters   | qty             | 2- Swivel; 2- fixed  | 2- Swivel; 2- fixed  | 2- Swivel; 2- fixed                                  | 2- Swivel; 2- fixed                                  |
| Adjustable Feet   | qty             | 2- Front of base; for securing unit in place   | 2- Front of base; for securing unit in place                     | 2- Front of base; for securing unit in place         | 2- Front of base; for securing unit in place         |
| Access Port   | qty             | 1- Back wall, left hand corner (facing unit)   | 2- (one each chamber)- Back wall, left hand corner (facing unit) | 2; 1 Left side 1 top                                 | 2; 1 Left side 1 top                                 |
| Access Port Diameter  | inches   mm     | 1.2   30   | 1.2   30   | 1.2   30   | 1.2   30   |
| <b>Alarms (V=Visual, B=Buzzer, R=Remote Alarm Contacts, A=Adjustable, D=Settable Delay, L=Logged)</b> |                 |  |  |  |  |
| Power Failure   |                 | V-B-R  | V-B-R  | V-B-R  | V-B-R  |
| High Temperature  |                 | V-B-R  | V-B-R  | V-B-R  | V-B-R  |
| Low Temperature   |                 | V-B-R  | V-B-R  | V-B-R  | V-B-R  |
| Door Open   |                 | —  | —  | V-B  | V-B  |
| Remote Alarm Contacts   |                 | Normal open, normal closed, common   | Normal open, normal closed, common                               | Normal open, normal closed, common                   | Normal open, normal closed, common                   |
| Remote Alarm Output   |                 | DC 24V 2A  | DC 24V 2A  | DC 24V 2A  | DC 24V 2A  |
| <b>Electrical and Noise Level</b>   |                 |  |  |  |  |
| Power Supply  |                 | 115V, 10, 60Hz, NEMA 5-15P requires 5-15R receptacle   | 115V, 10, 60Hz, NEMA 5-15P requires 5-15R receptacle             | 115V, 10, 60Hz, NEMA 5-15P requires 5-15R receptacle | 115V, 10, 60Hz, NEMA 5-15P requires 5-15R receptacle |
| Noise Level   | dB(A)           | 42   | 42   | 40   | 40   |
| <b>Options</b>  |                 |  |  |  |  |
| Data Logging and Communication Management   |                 | LabSVIFT <sup>1)</sup>   MTR-420MA-PW   LabAlert® Monitoring System*   MTR420MAC*   MTR420MAL* |  |  |  |

<sup>1)</sup> LabSVIFT available in USA only.

\* Manufactured by others

## MONITORING SYSTEMS AND COMMUNICATIONS

PHCNA offers real-time monitoring and notification systems designed to safeguard your investment in stored products. Our independent wireless monitoring solutions for refrigerators and freezers utilize a secure, cloud-based platform, that provide easy access and customizable dashboards without the need for software installation. Compliant with FDA 21 CFR Part 11, our systems ensure alerts, logging and reports for pharmaceuticals and vaccines. Scalable to meet the needs of growing facilities, they support multiple units and locations by adapting seamlessly to various scenarios.

## CALIBRATION SERVICES

PHC Corporation of North America offers both pre-delivery and on-site calibration services. Services are specifically designed to verify quality compliance and ensure display accuracy to manufacturing and regulatory specifications. Procedures and documentation are designed to conform to NIST/ISO requirements. ISO/IEC 17025\* calibration is available upon request.

## VALIDATION SERVICES

PHC Corporation of North America offers a full line of validation services that range from pre-delivery to comprehensive on-site equipment qualification. Services are specifically designed to verify quality compliance to manufacturing and regulatory specifications. Advanced technology is integrated alongside contemporary processes for turnkey solutions using NIST/ISO calibrated instrumentation for calibration, validation and qualification in accordance with current GxP regulations [GMP, GLP, GCP], ISO, CAP, AABB, CLIA, USDA, local standards and other regulations. We offer assistance in product selection that meets customer applications, including equipment, service and support.

\*ISO/IEC 17025:2005 specifies the general competence to carry out testing and/or calibration including sampling. It covers testing and calibration performed using standard methods, non-standard methods and laboratory-developed methods. (Ref: ISO Web Site, May 2016).



Specifications are subject to change without notice.

For latest specification information contact PHC Corporation of North America at [info@us.phcd.com](mailto:info@us.phcd.com).



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### About PHC Corporation of North America

PHC Corporation of North America, located in Wood Dale, IL, is a leader in laboratory equipment for the biopharmaceutical, life sciences, academic, healthcare and government markets. Product lines under the PHCbi brand include the space saving and energy efficient VIP® ECO and TwinGuard® ultra-low temperature freezers, cryogenic and biomedical freezers, pharmacy and high-performance refrigerators, cell culture CO2 and multigas incubators, Drosophila/plant growth chambers, lab monitoring systems, and cell and gene therapy solutions. PHC Corporation of North America is a subsidiary of PHC Holdings Corporation, Tokyo, Japan, which is a global healthcare company that develops, manufactures, sells, and services solutions across diabetes management, healthcare solutions, diagnostics and life sciences. For more information, please call PHC Corporation of North America at (800) 858-8442 or visit [www.phcd.com/us/biomedical](http://www.phcd.com/us/biomedical).