

Laboratory Equipment **PRODUCT GUIDE**



Growing Cells, Preserving them Forever

Ultra-Low and Cryogenic Freezers

Cryogenic Freezers, -156°C

The PHCbi brand MDF-C2156VANC-PA cryogenic freezer eliminates hazardous operating conditions as well as frequent maintenance and cost requirements of LN₂ storage. It also minimizes the chance of cross-contamination among multiple samples in cryogenic storage. VIP Plus cryogenic refrigeration offers excellent performance providing unsurpassed uniformity in the chamber from top-to-bottom, side-to-side and front-to-back.



VIP® ECO, to -86°C

VIP ECO ultra-low temperature freezers deliver more energy efficient and dependable ultra-low temperature storage with forward performing cooling systems. Upright VIP ECO ULT freezers use a variable differential cascade system powered by two variable speed inverter compressors with natural refrigerants. Our freezers are designed, tested and field-proven for safe, reliable storage of vaccines and other biologicals. Now available in both 220V and 115V electrical service. ENERGY STAR® Tested and Certified!

*Power consumption at commonly used storage temperatures demonstrates significant energy saving potential in the VIP ECO natural refrigerant platform. Power data is based on independent ENERGY STAR evaluation.



TwinGuard®, to -86°C

The TwinGuard is specifically designed to assure high performance ultra-low temperature cooling to achieve uniform temperatures and quick recovery following door openings. TwinGuard ultra-low temperature freezers are designed for long-term storage of vaccines and other biologicals, including mammalian and plant cell cultures, stem cells, cell lines and subcellular components. Markets served include pharmaceutical and biotech laboratories, biorepositories, government installations and medical research and academic institutions.



Cryogenic

VIP ECO

TwinGuard

VIP

	8.3 cu.ft. MDF-C2156VANC-PA	18.6 cu.ft. MDF-DU502VHA-PA MDF-DU502VH-PA	25.7 cu.ft. MDF-DU702VHA-PA MDF-DU702VH-PA	29.8 cu.ft. MDF-DU901VHA-PA	12.7 cu.ft. MDF-DU302VX-PA	18.6 cu.ft. MDF-DU502VXC-PA	25.7 cu.ft. MDF-DU702VXC-PA	25.3 cu.ft. MDF-DC700VXC-PA	3.0 cu.ft. MDF-C8V1-PA
TEMPERATURE RANGE									
Ultra-Low: -40°C to -86°C		MDF-DU502VH-PA	MDF-DU702VH-PA						
Ultra-Low: -50°C to -86°C		MDF-DU502VHA-PA	MDF-DU702VHA-PA						
Cryogenic, Air Phase: -156°C									
REFRIGERATION PLATFORM									
Cascade System									
Dual Auto Cascade									
Auto Cascade									
Hybrid Auto Cascade									
Variable Speed Inverter Compressor									
REFRIGERANT									
Natural Refrigerants, EPA SNAP Compliant*									
ENERGY CERTIFICATION									
ENERGY STAR® Certified									

* SNAP Significant New Alternatives Policy (US EPA)

Biomedical Refrigerators and Freezers

Refrigerators, Freezers and Combination Units

Storage temperatures specified in pharmaceutical package 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 and temperature uniformity, quick recovery, resistance to high ambient temperature and multiple monitoring processes, yields the performance pharmaceutical products demand.



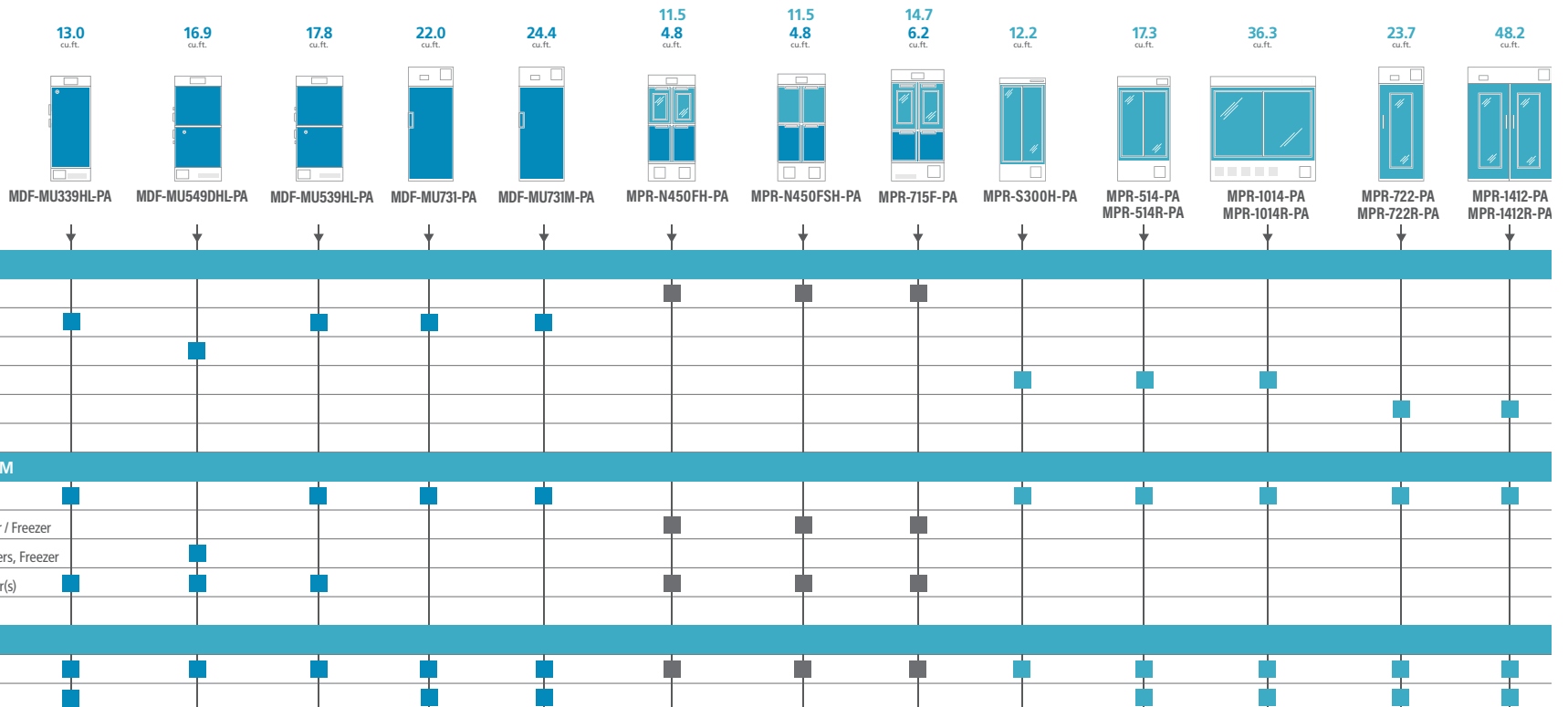
High Performance Vaccine Refrigerators

PHCbi brand storage cabinets are designed to meet current and evolving guidelines for safety and performance. Use of non-compliant household or domestic refrigerators for pharmaceutical storage is unsafe and can be costly.

Freezers

Refrigerator / Freezer Combo

Refrigerators



* SNAP Significant New Alternatives Policy (US EPA)

** ENERGY STAR does not certify combination refrigerator/freezer models.

Cell Culture Incubators and Growth Chambers

CO₂ and Multigas CO₂/O₂ Incubators

The PHCbi brand incubator family includes products designed for precision, uniformity and repeatability of conditions that replicate the *in vivo* environment. Our incubators are ideal for a variety of applications, including medical, pharmaceutical, biotech, government research, clinical and, for select models, IVF processes.



Heated and Cooled Incubators

PHCbi brand temperature controlled incubators and growth chambers include a suite of complementary operating systems designed to achieve the highest level of reproducibility. Each model uses a combination of essential technologies which share performance functions across the product family.

Laboratory Incubators

	1.8 cu.ft. MCO-50M-PA*	5.7 cu.ft. MCO-170MP-PA*	1.8 cu.ft. MCO-50AICL-PA*	5.8 cu.ft. MCO-170ACL-PA	5.8 cu.ft. MCO-170AICUVL-PA	5.8 cu.ft. MCO-170AICUVL-PA	8.1 cu.ft. MCO-230AICUVL-PA	30.1 cu.ft. MCO-80ICL-PA
CONTAMINATION CONTROL								
InCu-safe®	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
SafeCell™ UV	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Condensation Management	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
DECONTAMINATION								
Manual	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
SafeCell UV	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
H ₂ O ₂	Optional	Optional	Optional	Optional	Model Specific	Optional	Optional	Optional
High Heat 180°C	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
AUTOMATIC GAS CONTROL								
CO ₂ Infrared	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
CO ₂ Dual Infrared	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
CO ₂ Thermal Conductivity	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
O ₂ Zirconia	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard

Heated and Refrigerated Incubators

Plant Growth Chamber

	4.3 cu.ft. MIR-154-PA	8.4 cu.ft. MIR-254-PA	14.3 cu.ft. MIR-554-PA	10.4 cu.ft. MLR-352H-PA
TEMPERATURE RANGE				
-10°C to 60°C	Standard	Standard	Standard	Standard
10°C to 50°C (Lights On); 0°C to 50°C (Lights Off)	Optional	Optional	Optional	Optional
PROGRAMMING				
Temperature	Standard	Standard	Standard	Standard
Humidity	Standard	Standard	Standard	Standard
Lighting	Optional	Optional	Optional	Optional
Program Memory	Standard	Standard	Standard	Standard
CONDITIONING				
Forced Air	Standard	Standard	Standard	Standard
HUMIDIFICATION				
Ultrasonic Generated	Standard	Standard	Standard	Standard

Laboratory Equipment **Validation Services**

Value-Added Services from PHC Corporation of North America

PHC Corporation of North America offers consultative sales and service to assist customers through the entire PHCbi brand equipment selection and testing process. We help match the appropriate products to your requirements, and we can arrange inside delivery and setup (commissioning) if desired.

Factory Acceptance Testing

- Verification of product assembly
- Inspection for damage and defects
- Verification of options and accessories
- Operational verification of product
- Control verification
- Temperature performance testing

On-Site Services

- IQ/OQ/PQ
- Calibration
- Temperature Mapping

Calibration

- Verification using NIST certified calibrated equipment
- "As Found" and "As Left" data capture for traceability
- Calibration reports
- Equipment certifications
- System calibration certification

Temperature Mapping

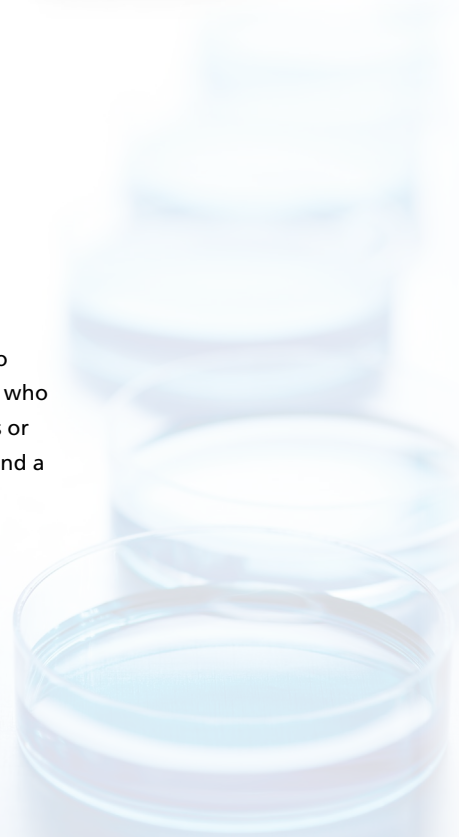
- Verification using calibrated equipment
- Stability Testing
- Performance reports

Validation Documents

Product specific validation protocols assigned to traceable standards are available for customers who prefer to execute their own validation activities or work with PHC Corporation of North America and a local service provider.

For details visit:

www.phchd.com/us/biomedical/services



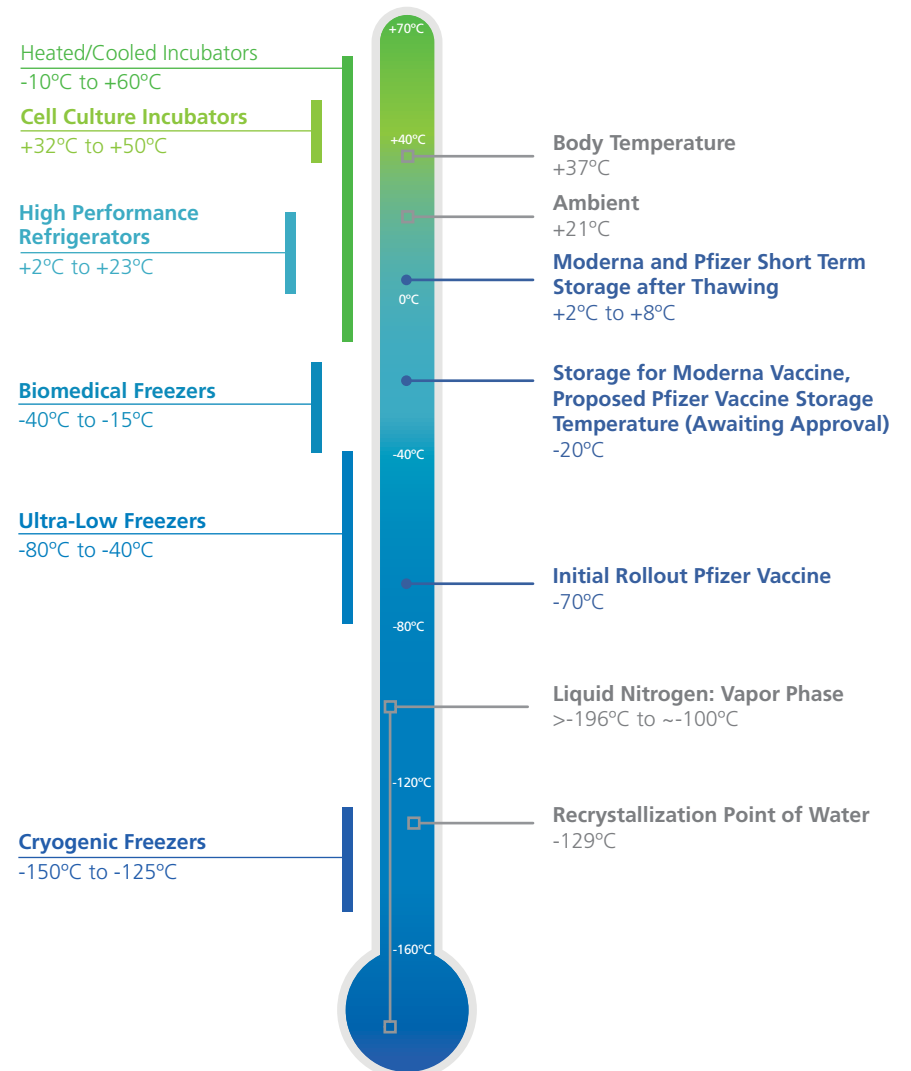
COVID-19 Solutions

COVID-19 Solutions for Novel, High-Value Vaccines

As new vaccines emerge with a wider range of required storage temperatures, PHCbi brand products are ready for installation. Designed and tested for precise temperature stability and rapid temperature recovery following frequent door opening, stored product viability is never in question.

PHC Corporation of North America offers pharmaceutical refrigerators and freezers that satisfy many storage protocols or space requirements while assuring uniformity, reliability and energy efficiency.

Environmental performance requirements for research, clinical and scientific investigation span a broad range of temperatures essential for cellular growth, processing, production, storage and preservation of a variety of biologicals used in life science, pharmaceutical, hospital/clinical and biotechnology applications.



About PHC Corporation of North America

PHC Corporation of North America is a subsidiary of PHC Holdings Corporation, Tokyo, Japan, a global leader in development, design and manufacturing of laboratory equipment for biopharmaceutical, life sciences, academic, healthcare and government markets.

We have worked to meet the expectations of customers in the medical and life science fields under both the Sanyo and Panasonic brands. Today, the PHCbi brand represents the combination of skilled consultative sales professionals, continuing technology innovations in high performance bio preservation and cell culture equipment, and the global infrastructure to support customer service and sales channel distribution anytime, anywhere.

Following on 50 years of innovation and service to the life science industry through its Biomedical Division, the company became PHC Corporation on April 1, 2018. Biomedical sales and customer service programs for North and South America are managed through PHC Corporation of North America.

Biomedical product lines marketed under the PHCbi brand include space saving and energy efficient VIP® ECO, TwinGuard® and VIP Series ultra-low temperature freezers, cryogenic and biomedical freezers, pharmacy and high performance refrigerators, cell culture CO₂ and multigas incubators programmable heated and refrigerated incubators, and Drosophila/plant growth chambers.

PHCbi brand products are available from leading laboratory supply distributors throughout North America, as well as from a network of independent sales representatives across the United States.







PHC Corporation of North America
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www.phchd.com/us/biomedical

Specifications are subject to change without notice.
For latest specification information contact PHC Corporation of North America at info@phchd.com. Performance data herein is based on independent testing at time of publication.

From SANYO Biomedical to PHCbi Brand

For more than 50 years, PHC Corporation has maintained a reputation for worldwide leadership in design and manufacture of general-purpose incubators and associated laboratory equipment used in biopharmaceutical, life sciences, academic, healthcare and government markets.

Milestones and Introductions

- 1965 Sanyo Biomedical Division Established
- 1966 First Sanyo Pharmacy Refrigerator Introduced
- 1977 First Ultra-Low Temperature Freezer
- 1986 First Mechanically Refrigerated -150°C Air-Phase Cryogenic Freezer
- 2001 **First CO₂ Incubator with UV Contamination Control** 
- 2008 First Incubator with H₂O₂ Decontamination
- 2009 **TwinGuard® Dual Refrigeration Ultra-Low Freezer** 
- 2016 Large Volume Biorepository Freezer
- 2017 High Heat Decontamination Incubator
- 2017 **VIP® ECO Ultra-Low Freezer with Natural Refrigerants** 
- 2018 **Panasonic Healthcare Corporation of North America becomes PHC Corporation of North America and launches new PHCbi brand** 
- 2018 ENERGY STAR® Certification for VIP ECO Ultra-Low Freezers
- 2018 Independent Testing Ranks VIP ECO Best Performing Ultra-Low Freezer in Side-by-Side Comparisons
- 2018 **ENERGY STAR Certification for a Wide Range of High Performance Refrigerators and Freezers** 