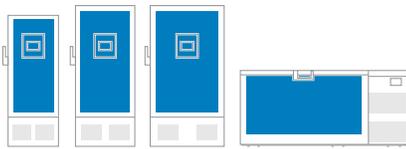


-86°C ULTRA-LOW TEMPERATURE FREEZERS

TwinGuard ultra-low temperature freezers are designed for long-term storage and preservation of high value biologicals and critical materials.



TwinGuard®

Models:

MDF-DU302VX-PA | 76200-148

MDF-DU502VXC-PA | 76019-346

MDF-DU702VXC-PA | 76019-348

MDF-DC700VXC-PA | 75788-512

Patented, redundant cooling technology.
Protects the most valuable specimens.

TwinGuard®

MDF-DU302VX-PA | 76200-148
12.7 cu.ft. (360 L)



MDF-DU502VXC-PA | 76019-346
18.6 cu.ft. (528 L)



MDF-DU702VXC-PA | 76019-348
25.7 cu.ft. (729 L)



MDF-DC700VXC-PA | 75788-512
25.3 cu.ft. (715 L)

Fifty years of innovation.

For more than 50 years, we have earned a reputation for introducing new generation ultra-low temperature freezers with documented success, each better than the last and each created and tested for reliability and performance. We empower our global marketing and sales teams to share ideas and real-world customer experiences with our research and development experts. Our manufacturing engineering group invests in the latest industrial design techniques for building better products.

We consult with our customers and we listen. As we continue this journey at your side, the PHC Corporation brand promise will remain the industry standard for performance, reliability and common-sense energy management - without compromise.



Facilities that use TwinGuard ultra-low temperature freezers include pharmaceutical and biotech laboratories, biorepositories, medical research and academic institutions, government and military installations, blood and tissue banks, hospitals, clinics and industrial research facilities.

Designed with Purpose.

Innovation comes with a scientific and social responsibility. New products must be sufficiently tested using real-world conditions before being introduced into the market.

As new technologies are developed within and beyond our industry, we explore, evaluate, test and deliberate their benefits with respect to the high-value stored products you entrust us to protect. With each product you purchase, your work is in our hands.

TwinGuard Ultra-Low Temperature Freezer Applications:

- Cell Cultures
- Stem Cells
- Cell Lines
- Subcellular Components

- Other applications range from archive storage of broad scale epidemiology research and frozen samples for investigations spanning decades or generations.



Performance, Reliability and Energy Management

4

The TwinGuard freezer design is based on the fundamentals of safe storage, dependable operation and power management.

PERFORMANCE

Superior performance cannot be compromised for any reason. The primary purpose of an ultra-low temperature freezer is to protect a stored product by achieving and maintaining a uniform temperature to assure cell viability, regardless of where samples are stored inside.

We measure performance based on temperature stability in the steady state, quick pull-down on initial startup, fast recovery following a routine door opening and slow warm-up during a power outage.

RELIABILITY

While performance is the first test of our product, long-term reliability is essential for protection of your research, peace of mind in your workflow and return on your investment.

The TwinGuard dual cooling system enhances our reputation for reliability in refrigeration safety and predictive maintenance, which is second to none in the world. TwinGuard expands the envelope of protection by orchestrating two cooling systems in succession or parallel, depending on user preference or automatically as the load changes.

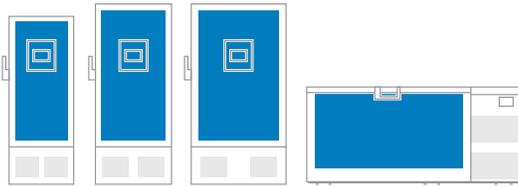
ENERGY MANAGEMENT

While reducing power consumption remains a priority in our research and development efforts, the scientific community can be assured that we will always place performance and reliability above all else in support of global scientific initiatives.

As refrigeration technology evolves in response to a global demand for non-ozone depleting refrigerants and more efficient operating costs, TwinGuard freezers confirm our investment in a new generation of ultra-low temperature cooling systems.

VERTICAL COMPONENT INTEGRATION

As a global company, we draw on vast corporate resources and worldwide engineering networks to develop new compressor designs, complementary refrigeration, electronic technologies and balanced energy efficiencies without trading off performance and reliability. TwinGuard represents the company's historical *vertical component integration* initiative which assures that PHCbi freezers include the latest high-performance electronics and sub-systems required to deliver sustainable outcomes.



Selection

TwinGuard ultra-low temperature freezers are available in three, space-saving upright cabinets and one, low-profile chest cabinet, each designed for both new laboratories and replacement installations. A variety of common components shared across the product line includes inventory management accessories and cloud-based alarm/monitoring systems that use the latest secure wireless technology.

TwinGuard freezers are designed to use inventory racks from PHCbi freezers and those of many competitive manufacturers, permitting a quick transfer of stored product for replacement installations.

TwinGuard Series Compressors

Each of the two TwinGuard auto-cascade systems is powered by a single compressor designed and engineered specifically to achieve and maintain ultra-low temperatures. The auto-cascade system is elegantly simple, using the physical properties of a mixed-refrigerant blend to achieve cooling power with minimal stress on the compressor motor. Additional considerations in compressor design include interior component apportionment for strength, lubricating efficiency, pressure and refrigeration flow ratios, motor temperature and heat removal.

- The integrated refrigeration system is designed to achieve faster temperature recovery following door openings, plus greater tolerance for higher ambient temperatures common in labs, hallways, freezer rooms, basements or some biorepositories.
- Auto-cascade compressor operating temperatures are minimized to extend compressor life within designed operating parameters
- Components are engineered to tolerate broader voltage deviations typical of real-world installations
- TwinGuard condensers require minimal cleaning with no need for an air filter
- Environmentally friendly non-CFC and natural refrigerant blends are used exclusively

Warranty

PHC Corporation of North America offers 5-year, parts and labor warranty protection on TwinGuard -86°C Freezers (North America only).



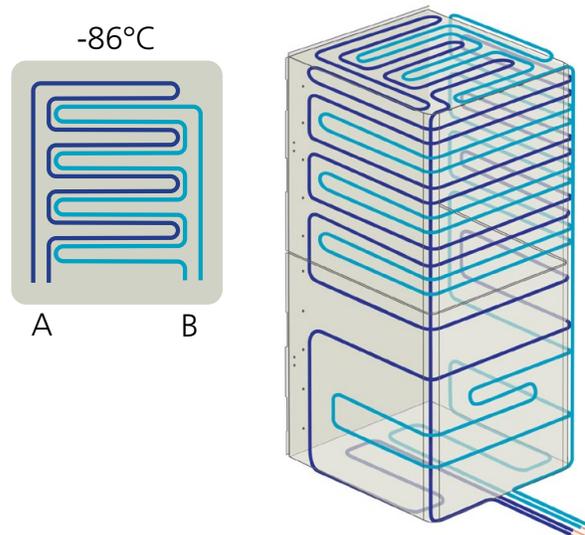
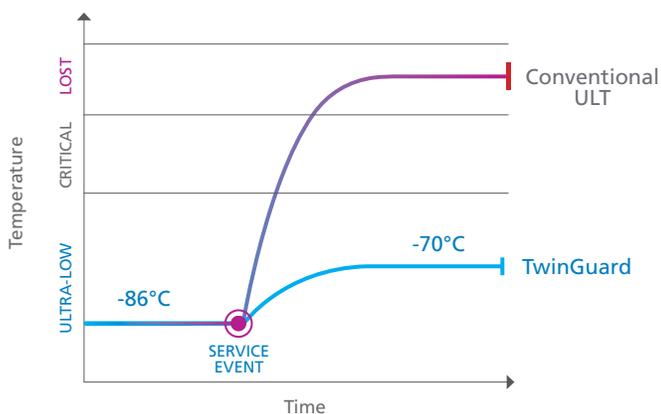
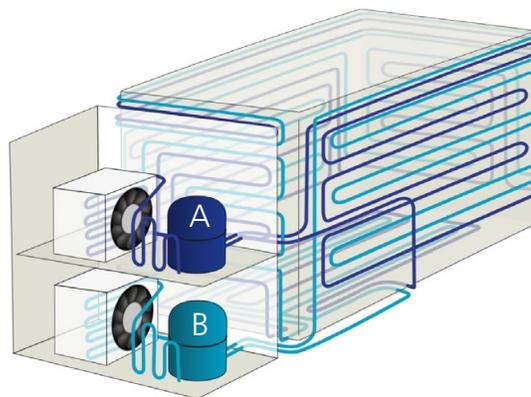
5-YEAR
PARTS & LABOR
WARRANTY

REFRIGERATION PLATFORM

TwinGuard Refrigeration Platform

The redundant refrigeration configuration of TwinGuard Series freezers permits refrigeration and compressor systems to work together to maintain setpoint temperature of -86°C and secondary temperatures of at least -70°C in case of a service event.

- TwinGuard freezers maintain reserve refrigeration power to assure fast temperature recovery following door and lid openings, for assurance of safe operating parameters during high ambient temperatures or throughout voltage fluctuations or area brown-out conditions
- Optional liquid CO_2 or LN_2 backup systems provide an added measure of protection for stored samples



Performance Data TwinGuard Freezers in Case of a Service Event

The TwinGuard refrigeration system is comprised of two independent auto-cascade circuits managed by an electronic controller. When combined with a back-up system connected to a facility liquid nitrogen supply or local liquid CO_2 cylinder, TwinGuard freezers establish an even tighter circle of protection around critical specimens.

TwinGuard Operating Modes

Status	A and B ON, Full	A and B ON, Cycling, Eco	A and B ON, Cycling, Normal	A ON, B Standby	B ON, A Standby
Function	Pull-down and Recovery	Energy over Performance	Performance over Energy	Backup for B	Backup for A
Performance	Maximum cooling power to -86°C or setpoint, maximum power for fast recovery following door openings	Useful when low-ambient temperature opportunity permits	Standard operation, stability at -86°C or at setpoint	Maintains minimum -70°C temperature with B offline	Maintains minimum -70°C temperature with A offline

Predictive Analytics

TwinGuard ultra-low temperature freezers are managed by a microprocessor-based digital controller designed for setpoint security, temperature display, system status, alarm functions and predictive performance advisories.

Local alarms with audible and visual alerts are standard. Remote alarm contacts are included on all freezer cabinets in easily accessible locations.

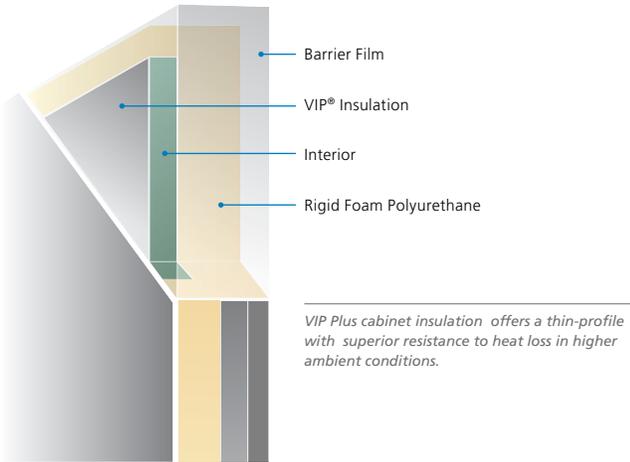
TwinGuard Controller	Touchscreen with Graphical Color LCD Display	
Information	All freezer functions	
Programming	Touchscreen menu, all functions	1
Main Display	Visual, actual temperature	2
Message Display	Multiple messages, error codes	3
Temperature Setpoint	Programmable	4
Date and Time	Programmable	5
Temperature Setpoint, Actual	Visual	
Control, Normal/ECO	Programmable	6
Temperature Alarms, High/Low	Indicator and visual message	7
Power Failure Alarm	Visual message	
Door Ajar Alarm	Indicator and visual message	8
Alarm Ring Back	Programmable	
Audible Silence	Manual	9
Alarm Test	Manual	
Sensor Abnormality	Visual	
Cooling Circuit Abnormality	Visual	
Condenser Abnormality	Visual	
Ambient Temperature Abnormality	Visual	
Replace Battery Indicator	Visual	
Remote Alarm Contacts	NO/NC/Common, DC, 30V, 2A	
Data Download	USB Port	10
Display Brightness, Sleep	Contrast adjustment, programmable	
Temperature Log Display	Visual	
Alarm Log Display	Visual	
Liquid Refrigerant Backup	Visual	
Battery Backup	Visual	
Liquid Cooling Backup	Visual	
Password Lock	Programmable	
Compressor Restart Sequence	Programmable, 3 to 15 minutes	
Alarm Delay	Programmable, 0 to 15 minutes	
Alarm Ringback Delay	Programmable, 1 to 99 minutes	
Door Ajar Alarm Delay	Programmable, 0 to 15 minutes	



LabAlert MONITORING SYSTEM *TwinGuard ultra-low temperature freezers are compatible with the LabAlert® cloud-based monitoring and communications system; see accessories.*

Integrated Access and Frost Mitigation

Opening the door of any ultra-low temperature freezer is not an insignificant event. Because extreme inside/outside temperature differentials often exceed 116°C (212°F), careful planning is encouraged before accessing the interior.



Frost Control, Upright Cabinets

The upright cabinet outer door is insulated and mounted on heavy duty oval fastened hinges to permit adjustment throughout the life of the freezer. The door incorporates a gentle, unobtrusive lift mechanism to resist sagging over time. When closed, the outer door design minimizes space between the outer door and inner doors which diminishes trapped ambient air volume. This reduces ice buildup and nuisance vacuum which can complicate a quick additional door opening.

- Insulated inner doors with gaskets minimize cold air loss during door openings and include positive latches to hold firmly against all compartments.
- Multi-point door gaskets create micro air breaks around the face of the cabinet, restricting moisture migration into the cabinet and minimizing frost. Gasket composition withstands extreme relative temperature differentials ensuring a full peripheral door seal.
- To minimize frost and protect the cabinet seal, all materials at the door/cabinet interface are engineered to minimize passive heat transmission from the outside to the inside and to reduce cold surfaces in contact with moist, ambient air.
- A measured portion of heat output from the refrigeration system is diverted to non-temperature conducting extrusions to resist moisture accumulation which can cause frost and ice build-up.

Frost Control, Chest Freezers

The chest freezer lid is insulated and attached to heavy-duty hinges supported by gas pistons. The hinges keep the lid in position when fully opened. Hinges are mounted to the chest cabinet on flanges with oval holes to permit adjustment throughout the life of the freezer. Precision molded, insulated sub-lids create additional protection against high ambient conditions.



VIP PLUS INSULATION

TwinGuard cabinets use VIP Plus insulation. Cabinets with VIP Plus insulation are formed with a composite of thin-profile vacuum insulation panel substrates supported by foamed-in-place insulation within the exterior walls. VIP Plus cabinets offer additional interior storage volume and exceptional insulation value within a compact footprint.

<p>Conventional Freezer</p> <div style="border: 2px solid #0070C0; padding: 10px; width: 80%; margin: 0 auto;"> <p style="text-align: center;">CAPACITY 480 2" Boxes</p> </div>	<p>MDF-DU702VXC-PA 76019-348 With VIP Plus Insulation</p> <div style="border: 2px solid #0070C0; padding: 10px; width: 80%; margin: 0 auto;"> <p style="text-align: center;">CAPACITY 576 2" Boxes</p> </div>
CAPACITY	
INSULATION	

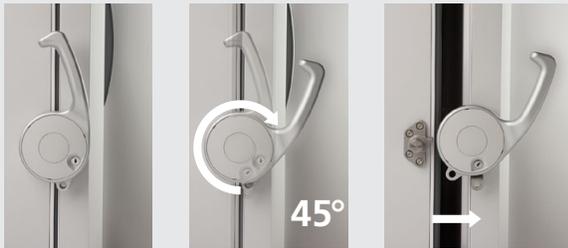


Multi-point peripheral gasket* mounted on the face of the cabinet is designed for *in situ* field replacement if required. A damaged gasket can be removed and replaced without tools while the freezer remains loaded and in operation, thereby avoiding downtime or a costly service call, and protecting your freezer well into the future.



EZLATCH DOOR HANDLE

When opening, the handle gently pushes the door away from the face of the cabinet. When closing, it evenly draws the door to the cabinet face against the multi-point gaskets. Excess air trapped between the inner doors and outer door is displaced for enhanced frost reduction.**



Standard on models MDF-DU302VX-PA | 76200-148, MDF-DU502VXC-PA | 76019-346 and MDF-DU702VXC-PA | 76019-348.

Vacuum Breaker

A unique, automatic vacuum breaker permits immediate re-entry into the freezer when the outer door is opened and closed. This hands-free device has been developed to overcome the vacuum created by the temperature differential of ambient air vs. cabinet air as the interior cools and reduces air volume. Although this vacuum is naturally released slowly over time, immediate re-entry into the freezer is often necessary.

Inner Doors

TwinGuard upright freezer cabinets include two insulated inner doors to add additional protection to the stored product. Optional inner doors, available on Models MDF-DU502VXC-PA | 76019-346 and MDF-DU702VXC-PA | 76019-348 only, include four or five inner doors to enhance flexibility in using legacy freezer racks or other inventory components.

* Available on upright models MDF-DU302VX-PA | 76200-148, MDF-DU502VXC-PA | 76019-346 and MDF-DU702VXC-PA | 76019-348 only.

** Available on upright models MDF-DU302VX-PA | 76200-148, MDF-DU502VXC-PA | 76019-346 and MDF-DU702VXC-PA | 76019-348 only.

DESIGN AND CONSTRUCTION

Standard on all models:

- Non-temperature conducting cabinet extrusion
- Heated cabinet periphery to resist moisture accumulation
- TwinGuard redundant auto-cascade refrigeration system
- Quiet operating condenser fan
- No air filters to clean or change
- Built-in voltage booster
- Thermal mastic evaporator surface enhancement



Model MDF-DC700VXC-PA | 75788-512

- 1 Low profile cabinet design
- 2 Adjustable lid hinges
- 3 Counterbalanced lid for ease of opening/closing
- 4 Adjustable leveling feet and recessed casters for mobility
- 5 Positive lid latch with keylock
- 6 Double bulb gasket on lid
- 7 VIP Plus vacuum insulated panels, only 2.8" thick
- 8 Remote alarm contacts
- 9 Wall brackets for securing freezer in place
- 10 Optional temperature recorder

Additional Features:

- Rounded corners for easy cleaning
- Temperature sensor
- Molded sub-lids
- Access port for optional CO₂ backup system
- Access port, general purpose



Model MDF-DU702VXC-PA | 76019-348 shown with one additional shelf to create five levels. Three shelves supplied standard. Additional shelves available. See accessories.

- A Primary door gasket is easily removed and replaced in the field without tools, without emptying freezer
- B Adjustable door hinges
- C Adjustable leveling feet and recessed casters for mobility
- D Unique vacuum breaker for re-entry after recent door closure
- E EZlatch door handle with key lock
- F Door mounted control panel for eye level viewing
- G VIP Plus vacuum insulated panels, only 2.8" thick
- H Remote alarm contacts
- I Wall security brackets
- J Optional temperature recorder
- K Rounded cabinet corners for easy cleaning
- L Stainless steel shelves and adjustable shelf clips
- M 3 shelves adjustable on 1/2" centers, standard
- N 2 ABS insulated inner doors with rigid stainless steel frames
- O Inner door gasket with positive latch for tight seal
- P Temperature sensor

Additional Features:

- Bottom mount evaporator for extra chamber cooling
- Inner doors on slip hinges are easily removed for full chamber access

Model Number		MDF-DU302VX-PA 76200-148	MDF-DU502VXC-PA 76019-346	MDF-DU702VXC-PA 76019-348	MDF-DC700VXC-PA 75788-512
Exterior Dimensions (W x D x H) ¹⁾	inches mm	26.4 x 34.7 x 72.4 670 x 882 x 1840	31.1 x 34.7 x 78.5 790 x 882 x 1993	40.6 x 36.8 x 78.5 1030 x 935 x 1993 ²⁾	90.6 x 37.6 x 42.1 2300 x 955 x 1070 ³⁾
Interior Dimensions (W x D x H)	inches mm	19.3 x 23.6 x 48.4 490 x 600 x 1230	24.8 x 23.6 x 55.1 630 x 600 x 1400	34.3 x 23.6 x 55.1 870 x 600 x 1400	58.3 x 25.2 x 29.8 1480 x 640 x 756
Volume	lbs. kg	12.7 360	18.6 528	25.7 729	25.3 715
Net Weight	lbs. kg	496 225	648 294	745 338	807 366
Capacity (2" Boxes / 3" Boxes)	qty	240 / 144	384 / 256	576 / 384	520 / 360
Inventory Racks (2" Boxes / 3" Boxes)	qty	12 / 12	16 / 16	24 / 24	40 / 40
Performance					
Warranty ⁴⁾		5 years parts and labor	5 years parts and labor	5 years parts and labor	5 years parts and labor
Cooling Performance ⁵⁾	°C	-86	-86	-86	-86
Temperature Setting Range ⁵⁾	°C	-50 to -90 in 1° increments	-50 to -90 in 1° increments	-50 to -90 in 1° increments	-50 to -90 in 1° increments
Temperature Control Range ⁵⁾	°C	-50 to -86 in 1° increments	-50 to -86 in 1° increments	-50 to -86 in 1° increments	-50 to -86 in 1° increments
Cooling Performance ⁵⁾ – Service Event – System A or B	°C	-80	-70	-70	-70
Control					
Controller		Microprocessor, touchscreen data entry, password protected	Microprocessor, touchscreen data entry, password protected	Microprocessor, touchscreen data entry, password protected	Microprocessor, touchscreen data entry, password protected
Display		LCD color touchscreen	LCD color touchscreen	LCD color touchscreen	LCD color touchscreen
Temperature Sensor		Pt-1000	Pt-1000	Pt-1000	Pt-1000
Refrigeration					
Refrigeration System	qty	2; auto-cascade	2; auto-cascade	2; auto-cascade	2; auto-cascade
Compressors	W	(2) 450	(2) 1100	(2) 1100	(2) 1100
Refrigerant		Mixed HC/HFC blended	Mixed HC/HFC blended	Mixed HC/HFC blended	Mixed HC/HFC blended
Insulation Thickness, Material	inches mm	3.1 80, Foamed-in-place +VIP Plus vacuum insulated panels	3.1 80, Foamed-in-place +VIP Plus vacuum insulated panels	3.1 80, Foamed-in-place +VIP Plus vacuum insulated panels	2.8 70, Foamed-in-place +VIP Plus vacuum insulated panels
Construction					
Exterior Material		Painted steel	Painted steel	Painted steel	Painted steel
Interior Material		Painted steel	Painted steel	Painted steel	Stainless steel
Outer Door / Lid	qty	1; with key lock, provision for optional pad lock	1; with key lock, provision for optional pad lock	1; with key lock, provision for optional pad lock	1; with key lock
Inner Doors / Sub Lids	qty	2 insulated; ABS, w/ stainless steel frames and positive latches	2 insulated; ABS, w/ stainless steel frames and positive latches	2 insulated; ABS, w/ stainless steel frames and positive latches	3 insulated; foamed styrene
Shelves	qty	3 adjustable	3 adjustable	3 adjustable	–
Shelf Dimensions (W x D)	inches mm	18.7 x 20.9 475 x 531	24.2 x 21.0 615 x 534	33.6 x 21.0 855 x 534	–
Max. Load - per Shelf	lbs kg	110 50	110 50	110 50	–
Max. Load - Total Freezer (3 Shelves and Floor)	lbs kg	440 200	440 200	440 200	–
Vacuum Release Port	qty	2: in door (automatic release) and side wall, lower left (manual release)	2: in door (automatic release) and side wall, lower left (manual release)	2: in door (automatic release) and side wall, lower left (manual release)	–
Access Ports	qty	3; upper back wall (back-up system), bottom left (recorder sensor), bottom right (access)	3; upper back wall (back-up system), bottom left (recorder sensor), bottom right (access)	3; upper back wall (back-up system), bottom left (recorder sensor), bottom right (access)	1; back wall
Access Port Diameter	inches mm	0.6 17	0.6 17	0.6 17	0.6 17
Casters	qty	4 (2 leveling feet on front base)	4 (2 leveling feet on front base)	4 (2 leveling feet on front base)	6 (3 leveling feet)
Alarms (V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm)					
Power Failure		V-B-R	V-B-R	V-B-R	V-B-R
Temperature (High and Low)		V-B-R	V-B-R	V-B-R	V-B-R
Sensor Failure		V-B-R	V-B-R	V-B-R	V-B-R
Door Open		V-B	V-B	V-B	V-B-R
Battery Check		V	V	V	V
Fan Motor Check		V	V-B	V-B	V
Cooling Circuit Abnormality		V-B-R	V	V	V-B-R
Remote Alarm Contacts		DC 30V 2A (normally open, normally closed, common)	DC 30V 2A (normally open, normally closed, common)	DC 30V 2A (normally open, normally closed, common)	DC 30V 2A (normally open, normally closed, common)
Electrical and Noise Level					
Power Supply		208V-230V, 1Ø, 60Hz, NEMA 6-15P, requires NEMA 6-15R receptacle	208V-230V, 1Ø, 60Hz, NEMA 6-15P, requires NEMA 6-15R receptacle	208V-230V, 1Ø, 60Hz, NEMA 6-15P, requires NEMA 6-15R receptacle	208V-230V, 1Ø, 60Hz, NEMA 6-15P, requires NEMA 6-15R receptacle
Voltage Booster		Standard, automatic, built-in	Standard, automatic, built-in	Standard, automatic, built-in	Standard, automatic, built-in
Noise Level ⁶⁾	dB[A]	52	52	52	52
Options and Accessories					
Inner Door Kit with 5 Smaller Doors ⁷⁾		–	MDF-SID5-PW 76501-150	MDF-7ID5-PW 76501-144	–
Inner Door Kit with 4 Smaller Doors ⁷⁾		–	MDF-SID4-PW 76501-148	MDF-7ID4-PW 76501-142	–
Liquid CO ₂ Back-Up System		MDF-UB7-PW 76490-324	MDF-UB7-PW 76490-324	MDF-UB7-PW 76490-324	MDF-UB5-PW 76490-332
Liquid Nitrogen Back-Up System		MDF-UB7-PW-LN2 76538-806	MDF-UB7-PW-LN2 76538-806	MDF-UB7-PW-LN2 76538-806	MDF-UB5-PW-LN2 76538-808
Additional Shelf		MDF3025LF 76383-326	MDF5025LF 76452-722	MDF7025LF 76452-720	–
Circular Type ⁷⁾	6", 7 day circular	MTRC954 97014-882	MTRC954 97014-882	MTRC954 97014-882	MTRC954 97014-882
Chart Paper	52 charts per box	C7100386REV 76490-366	C7100386REV 76490-366	C7100386REV 76490-366	C7100386REV 76490-366
Ink Pen	pack of 6	R252 76452-714	R252 76452-714	R252 76452-714	R252 76452-714
Optional Communication System					
Wireless, cloud-based, automatic data management		LabAlert Monitoring System	LabAlert Monitoring System	LabAlert Monitoring System	LabAlert Monitoring System

¹⁾ Exterior dimensions of main cabinet only, excluding handle and other external projections
²⁾ Exterior dimensions of cabinet excluding handle, rear stand-off brackets and other external projections. Consult product web page for doorway entry instructions, less than 36.8" for MDF-DU702VXC-PA | 76019-348
³⁾ Consult sales rep for doorway entry instructions, less than 37.6"

⁴⁾ Current warranty offered at time of printing and may be subject to change
⁵⁾ Air temperature measured at freezer center, ambient temperature +30°C, no load
⁶⁾ Nominal value – Background noise 20 dB(A)
⁷⁾ Installation of small inner door kit may affect usage storage capacity – upright freezers only

SERVICES

PHC Corporation of North America offers a full line of pre-delivery and on-site calibration and validation services. Validation services range from process/manufacturing audits, quality compliance, risk assessment and software qualification. Advanced technology is integrated with contemporary processes for turnkey solutions using NIST calibrated instrumentation for validation and qualification in accordance with all current GxP Regulations (GMP, GLP, GCP), ISO, FDA 21 CFR Part 11, CAP, AABB, CLIA, USDA, local standards and other regulations. Our calibration services are specially 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.

We also offer installation and continued technical services.

*Calibration, as well as IQQ/FAT documentation, are available upon request and quoted separately. 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 Website, May 2016).

LABALERT MONITORING

A real-time monitoring and notification system will protect your process. LabAlert provides independent, wireless monitoring for a range of equipment. The secure, cloud-based solution offers comprehensive airflow monitoring with customizable dashboards for easy user interface. No software installation is required. Supports FDA 21 CFR Part 11 compliance. LabAlert is scalable to meet corporate enterprise standards for efficacy and safety. It works across multiple units, multiple locations and easily adapts to growing facilities.

ADDITIONAL PRODUCTS

Complementary product lines under the PHCbi brand include the space saving and energy efficient VIP® ECO 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 microbiological incubators and Drosophila/ Plant Growth Chambers.



Specifications are subject to change without notice.
Performance data herein is based on independent testing
at time of publication.



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