The MDF-DU901VHA-PA is a large volume high performance ultra-low temperature freezer ideal for use in biorepositories or facilities where bulk storage of sensitive biologicals are managed. This freezer delivers optimum performance over a range of setpoints from -50°C to -86°C, adjustable in 1°C increments. It operates with natural refrigerants at 115V power and can pass through a standard 36” wide doorway for new or replacement installation; (may require temporary removal of exterior stand-off brackets).

**Natural Refrigerants, Intelligent Compressors**

The robust refrigeration system is powered by a new generation of high performance inverter compressors with natural refrigerants. These compressors are supervised by proprietary algorithms in the main controller firmware to maintain the most efficient energy consumption. Reserve refrigeration power assures fast temperature recovery following door openings and tolerance for high ambient conditions.

**Energy Efficient Performance**

The MDF-DU901VHA-PA combines upright freezer cabinet design, vacuum composite insulation and variable speed compressors that operate independently and only on demand. All natural refrigerants support facility sustainability objectives without compromising reliability, performance or reserve power needed to tolerate real world conditions. Operating costs are minimized while stored product protection is maintained.

**High Capacity Storage, Minimal Footprint**

The upright cabinet design includes a patented VIP Plus insulation composite which creates maximum interior space efficiency. It is designed and tested to tolerate high ambient temperatures in warm labs or hallways. The upright cabinet orientation holds up to 672, 2” boxes or 448, 3” boxes within a 10.79 sq.ft. (~1.0 sq.m) footprint.

**Microprocessor Controller**

An integral microprocessor controller combines setpoint security, monitoring, predictive performance and data logging functions into a single eye-level display. The large color LCD touchscreen can be controlled with a gloved hand. A USB port permits downloading of operating history as desired.

**Large Volume Efficiency**

As sample volumes in biorepositories and biobanks increase exponentially, the high capacity storage chamber offers space for expansion and overflow from crowded smaller freezers.

**Ergonomic Interface**

The EZlatch door handle (patent pending) is central to the inventory access system. It permits secure, one-hand opening and closing with a minimum of effort while preventing frost build-up. Positive latching insulated inner doors supplement outer door insulation. A manual vacuum relief port permits quick re-entry.
VIP ECO -86°C Ultra-Low Temperature Freezer with Natural Refrigerants

VIP Plus Insulated Panels
Inside-out engineering starts with a VIP Plus insulation composite which results in an efficient, thin-wall cabinet. Insulated inner doors improve temperature uniformity and cold air loss during door opening and extend warm-up times during power outages.

Temperature Uniformity Data:
-80°C setpoint at 23°C ambient temperature, empty freezer

Performance

Warranty 5 5 years parts and labor
Cooling Performance 6 °C -86
Temperature Setting Range 7) °C -50 to -90 in 1°C increments
Temperature Control Range 7) °C -50 to -86 in 1°C increments

Control

Controller Microprocessor, touchscreen data entry, password protected
Display LCD color touchscreen
Temperature Sensor PT-1000

Refrigeration

Refrigeration System Synchronized variable speed cascade system
Compressors 100% variable speed
Refrigerant High-stage R-290 natural refrigerant
Low-stage R-170 natural refrigerant
Insulation Thickness, Material 3.117B, rigid polyisocyanurate foam (PIF) + VIP Plus vacuum insulated panels

Construction

Exterior Material Painted electrogalvanized steel
Interior Material Powder coated electrogalvanized steel
Outer Door qty 1 (key lock with provision for optional padlock)
Inner Doors qty 2 (insulated, ABS, stainless steel frames, positive latches)
Shelves qty 3 (adjustable)
Shelf Dimensions (W x D) inches | mm 38.9 x 20.9 (988 x 533)
Max. Load per Shelf lbs | kg 110 | 50
Max. Load - Total Freezer lbs | kg 1266 | 144.4
Manual Vacuum Relief qty 1: lower left side
Access Ports qty 2: back wall and chamber floor
Access Port Diameter inches | mm 0.6 | 17
Casters qty 4 (2 leveling feet on front base)

Alarms (V = Visual Alarm, B = Buzzer Alarm, R = Remote Alarm)
Power Failure V-B-R
Temperature (High and Low) V-B-R
Sensor Failure V-B-R
Door Open V-B
Battery Check V
Remote Alarm Contacts DC 30V 2A (normally open, normally closed, common)

Electrical and Noise Level

Power Supply 115V, 1Ø, NEMA 5-20P, requires NEMA 5-20R receptacle
Noise Level 8) dB(A) 52

Options

Inner Door Kit with 4 Smaller Doors 9) MDF-9ID-PW
Liquid CO2 Back-Up System MDF-UB7-PW
Liquid Nitrogen Back-Up System MDF-UB7-PW-LN2

Temperature Recorder

Circuler Type 6" , 7 day circle MTRC364
Chart Paper 52 charts per box C7100388BTV
Ink Pen pack of 6 R252

Optional Communication System

Wireless, Cloud-Based, Automatic Data Management LabAlert® Monitoring System

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

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