The patented TwinGuard -86°C upright freezer is powered by a unique concept of two auto-cascade cooling circuits that work together, both independently and concurrently, to provide continuity in stored product protection over a range of real world conditions. The slim profile design permits installation in small spaces.

**Ultimate Sample Protection**

The dual cooling system offers the highest level of sample protection through the use of two independent refrigeration systems that maintain -86°C temperature. Should a service event occur, temperatures will hold at -80°C*. The two circuits work together for fast temperature recovery.

* Refer to the user manual for detailed performance information and specifications.

**Valuable Sample Storage**

With two complementary refrigeration systems, each capable of sustaining ultra-low temperatures, the TwinGuard design expands the circle of protection for maximum safety of stored product. Optional CO$_2$ back-up systems maintain a margin of safety for short-term operation in case of a power loss.

**Efficient Space Management**

This freezer is ideal for personal use where shared, remote or off-site storage of critical samples is not desirable. It requires less space than a standard ultra-low temperature freezer, yet holds up to 240 standard 2" storage boxes in only 6.36 sq.ft. (0.6m$^2$) of floor space.

**EZlatch**

EZlatch is the centerpiece of a holistic inventory access and frost mitigation system. The simplified, one-handed, comfortable operation keeps TwinGuard upright freezers operating at maximum energy efficiency.

**Security and Control Monitoring**

An eye-level, door mounted color LCD touchscreen allows full user control while the USB port makes transferring logged data to a PC convenient. All performance attributes are displayed and an internal time/temperature log is expressed in graphic form.

**Predictive Performance**

The freezer is managed by a microprocessor digital controller. Data is continuously collected throughout the system to predict any deviations from expected performance, which would in turn initiate alarms with audible and visual alerts.
**TwinGuard® -86°C ULT Upright Freezer**

The TwinGuard -86°C upright freezer design provides optimal temperature stability and uniformity. During routine door openings, the insulated inner doors minimize the loss of cold air even when the outer door is open.

**Improved Temperature Performance**

The TwinGuard -86°C upright freezer design provides optimal temperature stability and uniformity. During routine door openings, the insulated inner doors minimize the loss of cold air even when the outer door is open.

**Temperature Uniformity Data:**

![Temperature Uniformity Data Graph]

**Dimensions**

<table>
<thead>
<tr>
<th>Unit</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>763.5</td>
</tr>
<tr>
<td>Height</td>
<td>763.5</td>
</tr>
<tr>
<td>Width</td>
<td>240</td>
</tr>
</tbody>
</table>

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**Model MDF-DU302VX-PA shows inner door and shelf layout.**

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**PHC Corporation of North America**

1300 Michael Drive, Suite A, Wood Dale, IL 60191

Toll Free USA (800) 858-8442, Fax (630) 238-0074

www.phchd.com/us/biomedical

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**Model Number**

<table>
<thead>
<tr>
<th>MDF-DU302VX-PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Dimensions (W x D x H)</td>
</tr>
<tr>
<td>30 1/2 x 34 1/2 x 72 1/2</td>
</tr>
<tr>
<td>Internal Dimensions (W x D x H)</td>
</tr>
<tr>
<td>26 1/4 x 33 1/4 x 70 1/2</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>12.7</td>
</tr>
<tr>
<td>Net Weight</td>
</tr>
<tr>
<td>496</td>
</tr>
<tr>
<td>Capacity (2 boxes)</td>
</tr>
<tr>
<td>240</td>
</tr>
<tr>
<td>Capacity (3 boxes)</td>
</tr>
<tr>
<td>144</td>
</tr>
</tbody>
</table>

**Performance**

- Warranty: 5 years parts and labor
- Cooling Performance:
  - °C: -86
- Temperature Setting Range:
  - °C: -50 to -90 in 1° increments
- Temperature Control Range:
  - °C: -50 to -86 in 1° increments
- Cooling Performance:
  - °C: -80

**Control**

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

**Refrigeration**

- Refrigeration System: 2 (auto-cascade)
- Compressors: 4 (2) 450
- Refrigerant: Mixed HC/HFC blended
- Insulation Thickness, Material: 3.1 in (88), foamed-in-place + VIP Plus vacuum insulated panels

**Construction**

- Exterior Material: Painted steel
- Interior Material: Painted steel
- Outer Door: 1 (key lock with provision for optional pad lock)
- Inner Doors: 2 (insulated ABS, stainless steel frames, positive latches)
- Shelves: 3 (adjustable)
- Shelf Dimensions (W x D): inches | mm | 187 x 20.9 |
- Max. Load per Shelf: lbs | kg | 110 | 50 |
- Vacuum Release Port: 2 in (1/2 inch), automatic release and side wall, lower left (manual release)
- Access Ports: 3
- Access Port Diameter: inches | mm | 0.6 | 17 |
- Casters: 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
- Cooling Circuit Abnormality: V-B-R
- Door Open: V-B-R
- Battery Check: V-B-R
- Fan Motor Check: V-B-R
- Remote Alarm Contacts: 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
- Noise Level: dBA
  - 52

**Options**

- Liquid CO₂ Back-Up System: MDF-UB7-PV

**Temperature Recorder**

- Circular Type: 6”, 7 day circular
- Chart Paper: 52 charts per box
- Ink Pen: pack of 6
- 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.