



Twin Guard® Series -86°C Ultra-Low Freezers

Innovative 'Dual-Cool' Compressor Technology:

Two independent cooling systems allow the unit to run continuously at ultra-low temperature in the unlikely event of one compressor failure.

Patented VIP® PLUS Vacuum Insulation Panel:

Twin Guard® Series provide uniform temperatures with energy and space efficient refrigeration. Ideal for secure storage of high value biological samples, tissue, and rare specimens.

Intuitive Alphanumeric Control System:

All critical parameters are continuously monitored for optimum performance.



18.3 cu.ft.

Energy Savings

Twin Guard® Series freezers significantly increase ultra-low protection while **minimizing** energy costs through a unique **EcoMode function**.

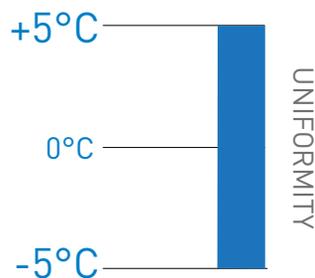
Power Consumption by Capacity
(KW/day/box capacity)

| | | |
|-----------|------|--------------------------|
| Panasonic | 0.34 | up to 10% more efficient |
| Brand A | 0.38 | |
| Brand B | 0.36 | |

Panasonic freezers provide reduced operational cost yielding highly efficient sample storage.

Uniformity

Twin Guard® Series freezers provide optimum chamber uniformity of +/-5°C over a **wide operating range** from -50°C to -86°C.



Surpasses the customer preference of +/- 5°C.

Operating Costs

Twin Guard® series freezers offer a large storage capacity of 352 2" boxes, while maintaining a small footprint with reduced energy usage, ultimately leading to **lower operational costs**.

Total Annual Operating Cost
by Box Capacity

| | | |
|-----------|--------|---------------------|
| Panasonic | \$1.24 | up to 10% less cost |
| Brand A | \$1.38 | |
| Brand B | \$1.29 | |

Cost is an average for operating freezer. The freezers emit heat into the laboratory, minimizing air conditioning costs.



Twin Guard® Series: -86°C Ultra-Low Freezers With Panasonic -86°C Dual Cool Independent Refrigeration Systems

The industry's most dependable ultra-low storage solution for high value biologicals

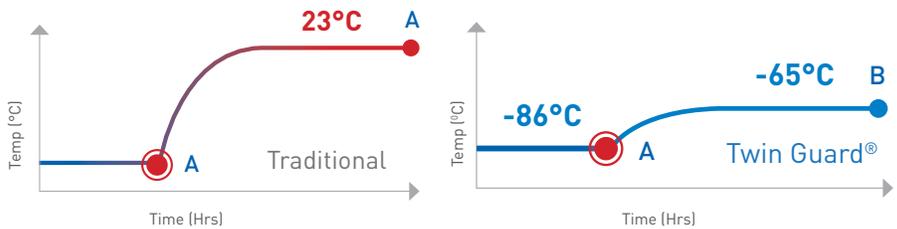
The MDF-U500VXC-PA Twin Guard® Series Freezer includes an integrated alphanumeric LCD performance monitor and digital controller for comprehensive system management, data logging, remote communications, alarms, predictive performance, and validation.

- Panasonic's patented VIP® PLUS vacuum insulation panel provides superior insulation and increased interior volume in the same footprint.
- The VIP® PLUS panel minimizes energy transfer to and from the ultra-low temperature interior. This advanced insulation technology offers structural stability to eliminate distortion, and inhibit moisture accumulation that can lead to icing. Aggregate insulation efficiency minimizes compressor cycle run-time to lower energy costs.
- The Panasonic Twin Guard® Series satisfies the industry demand for safe, long term storage for high-valued materials like *sensitive stem cells, embryos, cell lines, and other rare specimens.*



With Panasonic's patented Twin Guard technology,

Two compressors are completely separated from one another, with no reliance on the other to operate. So if one of them fails, the other remains unaffected and your freezer will stay within the ultra-low temperatures.



| MODEL | MDF-U500VXC-PA | | |
|--|---|---|---|
| TEMPERATURE SETPOINT RANGE | -50°C to -86°C | AREA FOOTPRINT (NOMINAL) | 7.22 sq.ft. / 0.67 m ² |
| -86 DUAL°C COOL (BOTH COMPRESSORS) | -86°C (ambient temperature 30°C) | STORAGE | 2" / 51 mm boxes: 352 3" / 76 mm boxes: 224 |
| SINGLE SYSTEM COOLING PERFORMANCE (INDEFINITE) | > -65°C (ambient temperature 30°C) | STORAGE (RACKS) FOR 2" FIBERBOARD BOXES | 16 (Each rack is 6 boxes high x 4 boxes deep) +16 (Each rack is 5 boxes high x 4 boxes deep) |
| CABINET INSULATION | Patented VIP® PLUS composite wall, energy savings | STORAGE (RACKS) FOR 3" FIBERBOARD BOXES | 16 (Each rack is 4 boxes high x 4 boxes deep) +16 (Each rack is 3 boxes high x 4 boxes deep) |
| EXTERIOR DIMENSIONS (W X D X H) | 30.3" x 34.3" x 78.3" (770 x 870 x 1990 mm) | ELECTRICAL, 60HZ | 208 / 230V NEMA 6-15 |
| INTERIOR DIMENSIONS (W X D X H) | 24.8" x 23.6" x 54.3" (630 x 600 x 1380 mm) | DATA MANAGEMENT | Internal data log with log file memory. |
| ENERGY CONSUMPTION | 16.37 kWh / Day (-80°C setpoint, 20°C ambient temperature) | NET WEIGHT | 328 kg (723 lbs) |
| VOLUME | 18.3 cu.ft. (519 liters) | ALARMS | High/Low temperature, door ajar, power failure, remote alarm contact, part replacement notification, fan motor lock, individual cooling circuit check. LabAlert - Optional. |
| SHELVES | 3 adjustable pieces, stainless steel (4 compartments) | ACCESS PORT | 17 mm diameter, 3 locations (back, bottom left/right corner) |
| VACUUM RELEASE PORT | Standard, Manual | CONTROLLER | Panasonic microprocessor-based, door-mounted control with alphanumeric LCD information center. |