



Points to Consider When Purchasing a -86°C Freezer.



Ultra-Low Temperature Preservation Equipment

From starting considerations to crucial factors, learn what matters most when selecting an ultra-low temperature freezer.



REFERENCE
BOOK



MDF-DU302VX

MDF-DU502VX

MDF-DU702VX

MDF-DU502VH

MDF-DU702VH

1. Performance

Performance is the first test of ultra-low temperature freezers. Manufacturers often add new product features and design attributes to stay competitive in today's market. While these changes can improve things like energy efficiency, they sometimes do so at the expense of performance.

The preservation of your research, biological samples or products cannot be compromised. Because the primary purpose of a -86°C is to achieve and maintain uniform temperatures to assure cell viability, performance is key. Superior performance ensures reliable preservation.



The **VIP ECO** uses smart compressors, integrated electronics and natural refrigerants to lower operating costs without putting reliability and ultra-low temperature performance at risk.



TwinGuard Series freezers have the industry's most time-tested redundant cooling systems. The independent cooling engines deliver reliable performance designed to protect the viability of your biological samples.

2. Reliability

The reliability history of freezer manufacturers is critically important when comparing ultra-low temperature freezers. Your work is priceless and your stored samples are irreplaceable.

Reliability is essential for research protection and a high return on your investment. Any ultra-low temperature freezer you consider should be field-proven for reliability.

Our freezers are designed to maintain operational reliability throughout the freezer life cycle. Compressors and intermediate systems work together to assure reliability first, then to optimize energy efficiency in the process.

The TwinGuard independent dual cooling system maintains normal temperatures as low as -86°C and should a service event occur, temperatures will hold at -70°C. Combined with conventional facility liquid CO₂ backup systems, the TwinGuard freezer creates a double circle of protection around critical specimens.

VIP Series ultra-low freezers have earned a worldwide reputation for **dependable performance in demanding laboratory environments** where critical materials are preserved for generations.



3. Temperature: Uniformity and Recovery

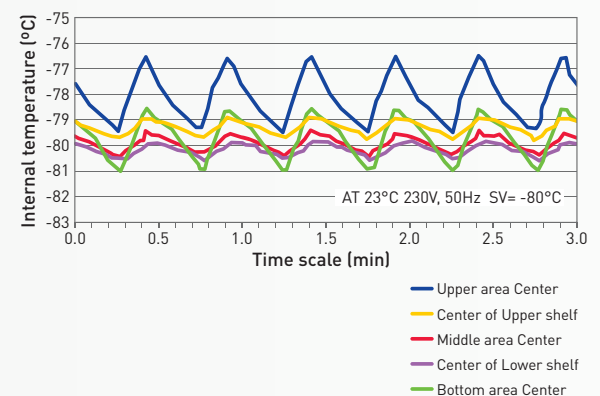
In a -86°C freezer, temperature uniformity and recovery are critical considerations.

Your ultra-low temperature freezer must be able to maintain uniform temperatures from top-to-bottom and front-to-back. Freezers should also be able to maintain ultra-low temperatures despite high ambient conditions.

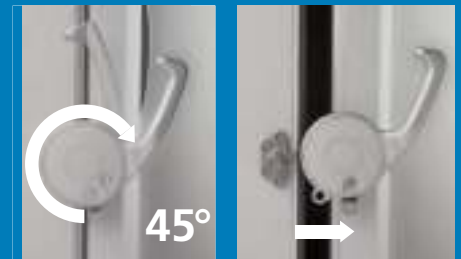
Temperature uniformity, stability and slow warm-up characteristics are inherent to our freezer cabinet design.

Careful planning of stored sample location is important to help minimize cold air loss during door openings. Quick entry and minimal door or lid opening times lead to better chamber uniformity, faster recovery of setpoint temperature and longer freezer life.

MDF-DU702VH Temperature Uniformity Data



The **EZlatch inventory access and frost mitigation system** simplifies one-handed freezer access. Available on select TwinGuard and VIP Series freezers, the EZlatch includes an easy access outer door to simplify door openings, help minimize cold air loss and ensure maximum energy efficiency.



4. Capacity

Freezer size, or capacity, is dependent on your facility needs and is often the starting consideration when looking for an ultra-low temperature freezer. Available floor space and anticipated storage volume both factor into your ideal capacity.

INSTALLATION CAPACITY

Freezer location and available laboratory floor space often determine whether you need an upright or chest model ultra-low temperature freezer.

STORAGE CAPACITY

Interior storage capacity can be optimized through freezer designs that implement thin-wall installation. Such freezers offer maximum storage capacities in a variety of sizes that inherently limit laboratory footprint.



MDF-DU900V



MDF-DU302VX

PHCbi has products for high-volume sample storage as well as slim-profile upright models.

In Conclusion

These considerations are the first areas to compare when purchasing a new ultra-low temperature freezer. Using them to shape your purchase decision helps ensure the safe, long-term preservation of your stored samples and the maximum return on your investment.

Of these considerations, **performance, reliability and temperature uniformity and recovery** are the most critical as they directly impact the safety of your products or research samples.

Evaluating manufacturers and freezer models using **third-party testing** allows you to make one-to-one, unbiased comparisons.

Data **monitoring** capabilities and available storage **capacity** are directly determined by your specific application and your current facility setup.

For more than 50 years, PHC Corporation has earned a reputation for introducing new generation ultra-low temperature freezers with documented success. Each new model is better than the last—created and tested for reliability and performance.

Choose wisely.

