Storage Density and the Total Cost of Ownership

Feature Note

VIP Plus Cabinet Design, Floor Space Efficiency and Load Optimization are Ideal for Biobanks, Biorepositories and High Volume Applications

MDF-DU901VH

MDF-DU900VC

VIP PLUS vacuum insulation

The freezer cabinet features our VIP Plus insulation profile, a thin-wall composite of vacuum insulated panels layered with high performance, CFC-free foam, creating maximum internal volume per m² ratios.

Capacity is 616 2" boxes in a compact 1.0 m² footprint.

Ideal for Biorepositories

Performance and reliability are the most important considerations when evaluating the total cost of ownership for an ultra-low temperature freezer. The model MDF-DU901VH/ MDF-DU900VC ultra-low temperature -86°C freezer is engineered from the inside out for performance, reliability and maximum storage within a compact footprint.

Exponential Increase in Biological Storage Demand

Recent market data shows an increased demand for long-term storage of biological samples due to the rising importance for clinical and pharmaceutical trials. Scientific studies are also increasing demand for more storage of patient specimens and samples.

Biobanks and Biorepositories

With the rising demand for additional -80°C storage, more preservation equipment within new and existing biorepository facilities will be required. When outfitting a facility, careful consideration of -80°C ultra-low temperature freezers, including the peripheral tools and maintenance should be considered.

$215

Estimates have shown that the annual floor cost for each ULT freezer in a biorepository is approximately $215, total cost, per m².[1)] Beware that prices strongly vary per country and location.

[1)] "Repository Planning, Design, and Engineering: Part II—Equipment and Costing", Phillip M. Baird and Elaine W. Gunter Includes costs for acquisition or lease of "cold, dark" warehouse space and additional costs.

PHC Corporation, Biomedical Division

Life Science Innovator Since 1966

Return on Investment by Comparison

The overview below illustrates the competitive advantages of the model MDF-DU901VH/MDF-DU900VC for a Biobank/Biorepository, based on the recommendation of general storage capacity of 30,000 2" boxes in a 223 m^2 space.

		PHCbi*	Brand T	Brand T	Brand T	Brand T	Advantage
Freezer volume	litres	845	815	815	949	682	
Storage	2" boxes	616	600	600	700	500	
Freezer footprint	m^2	1.003	1.057	1.058	1.200	0.920	PHCbi has the smallest footprint
Boxes per m^2	2" boxes	614.45	567.54	567.15	583.33	543.68	PHCbi stores more 2" boxes per m^2
Floor cost per freezer (at $215 per m^2 per year) (Beware that prices strongly vary per country and location)	$	215.54	227.29	227.45	258.00	197.73	PHCbi has the lowest cost per m^2 footprint
Floor cost per 2" box	$	0.35	0.38	0.38	0.37	0.29	PHCbi has the lowest cost per m^2 for 2" box
Number of freezers required to store 30,000 2" boxes	freezers	49	50	50	43	60	PHCbi only requires 49 ULT freezers to store 30,000 2" boxes **
Floor cost for the number of freezers required to store 30,000 2" boxes	$	10,561.56	11,364.74	11,372.64	11,094.00	11,863.68	PHCbi offers less total cost per m^2 for the number of ULT freezers required when considering 821 L or larger capacity ULT freezer
Total floor space required for 30,000 2" boxes	m^2	49.12	52.86	52.90	51.60	55.18	PHCbi requires less m^2 to store 30,000 2" boxes
Floor space % required to store 30,000 2" boxes	%	22	24	24	23	25	PHCbi provides an ideal efficient use of floor space

** Model MDF-DU901VH/MDF-DU900VC*

*** Only the 949 L freezer requires fewer freezers to achieve the storage capacity of 30,000 2" boxes. However, total cost per m^2 floor space for the number of 949 L freezers increases by a total of $533.*

Reliability and Performance

PHC Corporation engineered refrigeration compressors are specifically designed for ultra-low temperature applications. The MDF-DU901VH/MDF-DU900VC employs a time-proven refrigeration system which has demonstrated better than 99% uptime.

Unique system cooling functions within the cascade refrigeration circuit essentially use the same energy twice, once to cool the preserved product and again to cool the compressors and lubricating oil essential for proper operation. This process minimizes compressor stress and extends the compressor life. All functions are strategically balanced by the microprocessor-based controller which responds according to heat load, door openings and ambient conditions.

PHC Corporation has engineered the most robust refrigeration system for ultimate performance and reliability in our ultra-low temperature freezers.