PrincetonCryo.com
Cryogenic Delivery and Storage Systems

CHART

SECURITY THROUGH MVE SYSTEMS
A Chart Industries Company

Tech Tips

(November 2016)

Product Information

New Chart MVE Vapor Shippers

As part of Chart MVE's continuous improvements we are pleased to announce the release of a broad new spectrum of vapor shippers. Information and specifications on these new shippers may be found below. If you have any questions, please contact technical service.

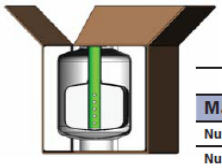
MVE BL-7

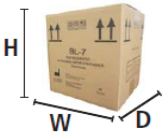
The new MVE BL-7 (Biologistic) is a secure cryogenic shipping option for your biological samples. The MVE BL-7 incorporates creative engineering and simplistic design to allow shipping in any orientation without sacrificing temperature or hold time. Improved welded construction provides the BL-7 with consistent, high quality design with every unit. The MVE BL-7 allows for savings on dry ice, packaging, shipping cost, and disposal.

Features include:

- Charges in 2 hours
- Operates as a dry shipper
- -150° C temperature
- 7-day holding time
- Safe shipping in any orientation
- Welded construction for added integrity
- Safe for international shipping; IATA Dangerous Goods Regulations Exempt (Special Provision A152)

Above:
CryoCube insert





	BL-7
Maximum Storage Capacity	
Number of Canisters	1
Number of 1/2 cc Straws in Bulk	115
Number of 1/4 cc Straws in Bulk	270
Number of 1.2 & 2.0 ml vials	15
Performance	
LN2 Capacity w/o Inventory (min) *L est.*	2.1
Static Holding Time *(days)*	7
Unit Dimensions	
Neck Opening *In. (mm)*	1.97 (50)
Overall Height *In. (mm)*	15.0 (381)
Overall Width *In. (mm)*	12.64 (321)
Overall Depth *In. (mm)*	12.64 (321)
Inner Canister Height *In. (mm)*	5.00 (127)
Inner Canister Diameter *In. (mm)*	1.50 (38)
Weight Empty *lb. (kg)*	9.26 (4.2)
Weight Charged *lb. (kg)*	13.01 (5.9)

MVE CryoShipper CT-50

The MVE CryoShipper CT-50 is specifically engineered to ship one to two 25 mL blood bags. Our unique rack design that holds one to two blood bags helps limit sample movement during transit.

Features include:

- Cassette Retrieval
- Secure shipping for one to two 25 mL blood bags
- Datalogger option is available
- Charges in 2 hours
- Safe for international shipping; IATA Dangerous Goods Regulations Exempt (Special Provision A152)

	MVE CryoShipper CT-50
Maximum Storage Capacity	
Number of Blood Bags 25 mL	2
Performance	
LN2 Capacity (min) L est.	5
Static Evaporation Rate* L/day	0.5
Static Holding Time* days	10
Unit Dimensions	
Neck Opening in (mm)	3.82 (97)
Overall Height in (mm)	15 (380)
Outside Diameter in (mm)	14.5 (368)
Weight Empty lb. (kg)	17.6 (8)
Weight Charged vapor lb. (kg)	26.45 (12)

MVE CryoShipper CT-250

The MVE CryoShipper CT-250 is engineered specifically to be able to ship one to two 250 mL blood bags. Our unique rack design helps limit sample movement during transit. This cryoshipper holds one cassette retrieval rack designed to hold one or two 250 mL cassettes.

Features include:

- CT250 Frame puller
- Secure shipping for one to two 250 mL blood bags
- Charges in under 2 hours
- Safe for international shipping; IATA Dangerous Goods Regulations Exempt (Special Provision A152)

	MVE CryoShipper CT-250
Maximum Storage Capacity	
Number of Blood Bags 250 mL	2
Performance	
LN2 Capacity (min) L	8
Static Evaporation Rate* L/day	0.8
Static Hold Time* days	10
Unit Dimensions	
Neck Opening in (mm)	6.5 (165)
Overall Height in (mm)	19.8 (502)
Outside Diameter in (mm)	16.0 (406)
Weight Empty lb. (kg)	24.3 (11)
Weight Charged vapor lb. (kg)	38.6 (17.5)
Frame Puller Height in (mm)	15.2 (385)
Frame Puller Width in (mm)	6.3 (161)

MVE CryoShipper 2000

The MVE CryoShipper 2000 is engineered specifically to ship large quantities of 1.2 and 2.0 mL vials. The new design can also store samples in liquid nitrogen after arrival at its destination.

Features include:

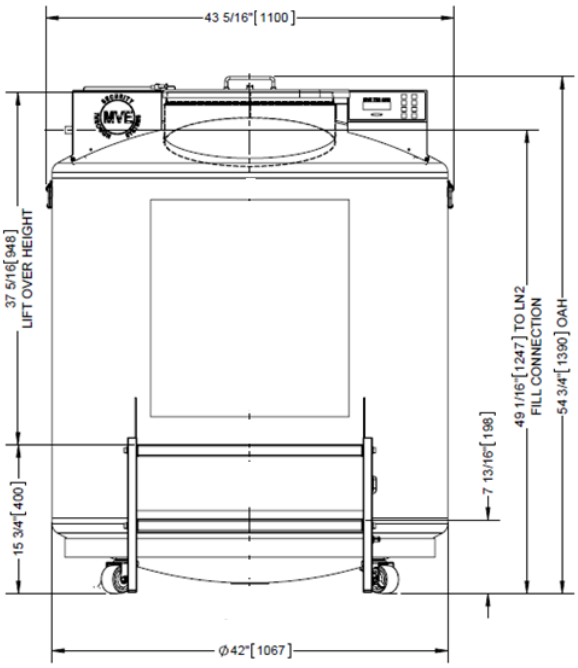
- Large capacity vapor shipments
- Low liquid nitrogen consumption
- -150°C or colder
- Protective shipping container available
- Datalogger accessory is available
- Charges in under 2 hours
- Safe for international shipping; IATA Dangerous Goods Regulations Exempt (Special Provision A152)

	MVE CryoShipper 2000
Maximum Storage Capacity	
Number of Square Racks	4
Number of Boxes per Rack	5
Number of 1.2 & 2.0 mL vials (100/box)	2000
Performance	
LN2 Capacity (min) L	65
Static Evaporation Rate* L/days	0.79
Static Holding Time days	15
Unit Dimensions	
Neck Opening in (mm)	8.5 (215.9)
Overall Height in (mm)	27.2 (692)
Outside Diameter in (mm)	22.0 (559)
Weight Empty lb. (kg)	65 (29.5)
Weight Charged vapor lb. (kg)	95 (43.1)
Weight Full lb. (kg)	185 (83.9)

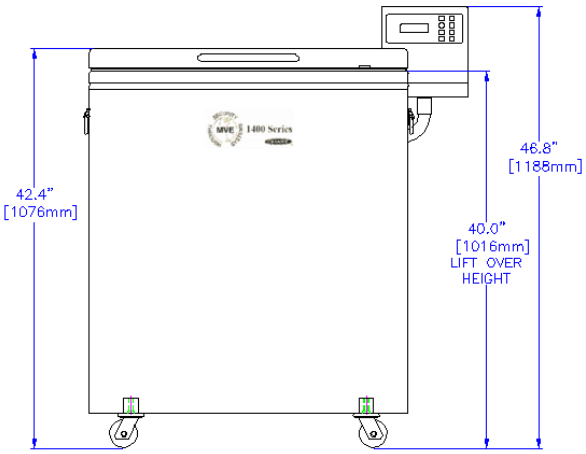
Helpful Hints/FAQ's

Q: I have ensured all TEC3000 controllers have individual ID's and that the COMM port settings are set to OFAF, but I have still having trouble with the controller's communicating. What could be the issue?
A: Make sure all TEC3000's in the network are running the same version of firmware. Different firmware versions can encounter issues in OFAF operation when networked together. TEC3000 controllers can be upgraded in the field if needed. See the TEC3000 Technical Manual for more detail on upgrading the controller firmware.

Q: What is a freezer "liftover height"?
A: The liftover height refers to the distance between the floor, or step, and the neck opening of the freezer. In other words, it is the minimum distance one must lift a rack to insert it into the freezer. For example, the HEco 1536P freezer has a liftover height of 37 5/16" from the top step to the neck opening, as shown in the drawing below:



The MVE 1426 freezer has a liftover height of 40" from the ground to the neck opening, as shown in the drawing below:



The liftover height for other freezer models may be found in the table below:

MVE High Efficiency	Liftover Height (in.)	MVE HEco	Liftover Height (in.)
MVE 815P-150	47.3	HEco 815P-190	40
MVE 815P-190	47.3	HEco 818P-190	51.8
MVE 818P-190	51.6	HEco 819P-190	47.6
MVE 819P-190	55.3	HEco 1536P-190	37.3
MVE 1536P-150	37.1	HEco 1539P-190	38.3
MVE 1536P-190	37.1	HEco 1542R-190	39.4
MVE 1539P-190	39.2	HEco 1879P-190	39
MVE 1879P-150	38.7	HEco 1892P-190	44
MVE 1879P-190	40.2	HEco 1894R-190	44
MVE 1892P-190	45.2		
MVE 1539R-150	37.1	**MVE Series**	**Liftover Height (in.)**
MVE 1542R-150	39.2	MVE 205	41
MVE 1542R-190	39.2	MVE 510	41.6
MVE 1881R-150	38.7	MVE 616	41.4
MVE 1881R-190	38.8	MVE 1426	40
MVE 1894R-150	43.8	MVE1838	47.3
MVE1894R-190	43.8		
		MVE Cabinet Series	**Liftover Height (in.)**
MVE Stock Series	**Liftover Height (in.)**	MVE 616C	41.4
MVE 808	39.1	MVE 1426C	40.2
MVE 816P-2T-190	48.3		
MVE 1318	43.6		
MVE 1842P-150	42.5		
MVE 1877P-2T-150	36.3		

Q: The freezer lid and neck area appear to have excessive frost and condensation when the freezer fills; is that normal?
A: Sometimes a large amount of frost and ice accumulates around the freezer lid that could be attributed to several issues. Check the gasket by initiating a fill cycle and observe the lid. If the lid shakes or vibrates during the fill, verify the source pressure. The supply pressure must be 22-35 psi (1.5 to 2.4 bar). Verify the gasket is not warped and replace as necessary; this may alleviate the problem.

Q: Should one use caution when not using the bottom stage on square racks when storing in vapor?
A: When one does not use the bottom stages of the racks because of the large amount of force exerted by the weight of the samples/boxes, deformation of the rack can occur. To help alleviate this condition, we recommend using empty boxes as placeholders in the bottom stages.

Sanitizing and Decontaminating Chart Aluminum and MVE Dewars

MVE aluminum Dewars are constructed with an aluminum inner, which utilizes a fiberglass neck support. The stainless units are constructed with an inner entirely fabricated from stainless steel sheets. Any cleaning solution that does not react with aluminum or stainless can be used in the sanitation process. In most cases, many household detergents or mild soap solutions may be suitable. The U.S. Custom Service uses a solution called EXPOR for incoming shipments from abroad. This is mixed 9 parts water mixed with sodium chloride and lactic acid. As mentioned above, however, most any household cleaning solution can be used. These include bleach, detergents, and mild soaps. Other cleaners and disinfectants that can be safely used include hydrogen peroxide, chlorine/water and denatured alcohol.

NOTE: DO NOT USE ANY PETROLEUM BASED CLEANING SOLUTION

After using a cleaner, it is important that the inner vessel is thoroughly rinsed with water and all cleaner residues have been removed. Spraying the solution into the inner vessel is preferred, although agitation of the solution inside the inner will suffice. Vapor shippers and Doble units will require filling the inner to its full capacity with cleaning mixture and then rinsing. Allow the unit to dry thoroughly before putting into service. With vapor shippers, we suggest placing the Dewar on end (inverted) to drain and dry. The process is not intended for use in vapor shipper models manufactured prior to 1994. The generally accepted practice of using 10% chlorine bleach with 90% water solution still holds as the best method for decontamination. However, with some of the bovine and swine virus strains showing up today, it is the conclusion of the agricultural professors at the University of Minnesota and Texas A & M that an increased mixture of chlorine bleach to 30% and 70% water will kill all known viruses except BSE. These are still unknown to them and they are not willing to offer a solution.

To perform this sanitizing procedure, cover all inner surfaces with the solution, let stand for 30 minutes and remove. Rinse the decontaminated surfaces with clean water and remove rinse water. Allow Dewar to dry before putting into service. For vapor shippers and Doble units, this means to place Dewar on end (inverted) and allow drying.

Note: Vapor Dewars can be used immediately after rinsing but may take longer to recharge to 100% capacity. Contact Chart Technical Service for details and information if you have any questions concerning decontaminating Dewars.

Accessories

MVE 800 2-Tier Step Assembly

MVE800 2-Tier Step assembly, PN 20820733. The 2-Tier step assembly enables easy access, insertion, and removal of taller rack systems on the HECO/HE 800 Series. The single step assembly, PN 13082551, is available and optional for the HE 800 Series; standard on the HECO 800 Series.

Chart Printer Kit

Chart sells a printer kit that can be connected directly to the serial port of the TEC2000 or TEC3000 for those who prefer paper records. The Printer Kit P/N is 11544943.