

# Tech Tips

(February 2016)

## Product Information

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### Chart MVE Variō™ Series

The Chart MVE Variō Series is the energy efficient alternative for ultra-low temperature cryogenic storage. The completely dry sample storage maintains a user-defined temperature anywhere between -20°C and -150°C. The Chart MVE Variō Series significantly reduces the possibility of cross contamination as it provides a complete solution to vapor storage and temperature control. The series also provides the safety margin and consistent temperature profile. The Chart MVE Variō Series consumes less than 1% of the power consumption and provides approximately 70% overall operating cost savings when compared to the leading mechanical freezers.

#### Features include:

- Approximately 70% operating cost savings compared to leading mechanical freezers (-80 °C)
- Less than 1% of the electricity consumption compared to leading mechanical freezers
- Complete dry storage area
- Consistent temperature profile, even with lid open
- No thermal load; no heat introduced into room and no additional HVAC required
- No more expensive compressors to replace
- Convertible asset, can be retrofitted to operate as a High Efficient -190 °C Freezer



## Protective Shipping Carton Hinge

Chart MVE is the world's leading manufacturer of vacuum insulated products and cryogenic systems. We have a large product line of aluminum Dewars and stainless steel freezers used for the storage and transportation of biological materials at low temperatures. Chart MVE has set the standard for storage of biological materials for more than forty years. During this time, we have strived to continuously improve our products and service. The hinge assembly for the Vapor Shipper Shipping Container is PN 20750408 and 20750409.

New lid hinge part number 20750408 will be used with the following models:

SC 2/1V, and MiniMoover

New lid hinge part number 20750409 will be used with the following models:

SC 4/2V, and SC 4/3V



New hinge part number 20750409

The warranty registration card, PN 10468678, will be discontinued, as the warranty is automatically registered to the original purchaser.

## Helpful Hints/FAQs

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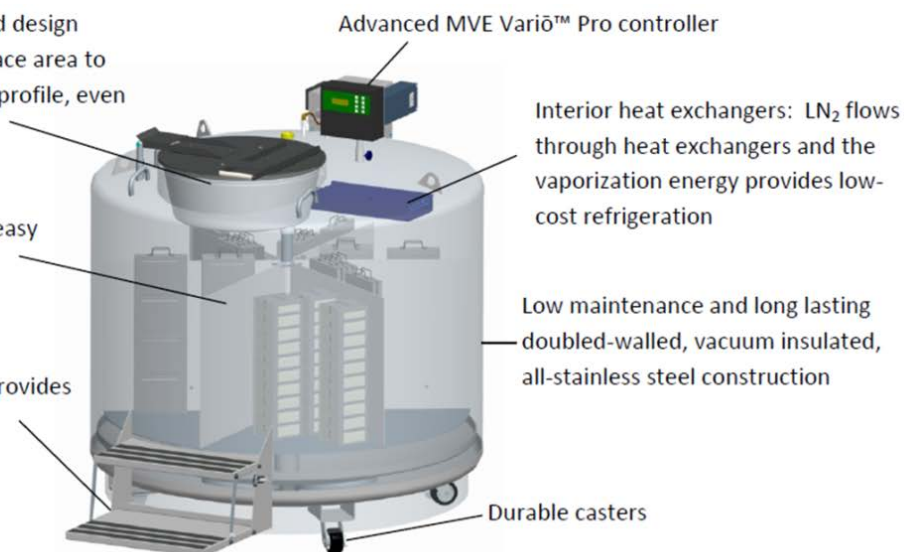
Q: What is the recommended liquid level for the MVE Variō Freezer?

A: The Chart MVE Variō Series does not require LN2 liquid level set points as it is designed as a refrigeration system that uses LN2 as a refrigerant. The MVE Variō Pro controller monitors and meters the amount of LN2 flow through the heat exchanger to maintain a completely dry storage space from -20°C to -150°C, within  $\pm 5^\circ\text{C}$ , of the user-defined storage temperature.

Efficient offset neck and hinged lid design maximizes vacuum insulated surface area to maintain consistent temperature profile, even with the lid open.

Rotating interior tray allows easy access to freezer samples

Two-tier folding step provides lowest liftover height



Q: Can you provide a specification sheet with a breakdown of your model numbers (legend) that explains the various abbreviations associated with your cryogenic freezers?

A: Yes, see below. We also provide specification sheets for each MVE Freezer Model. Chart MVE offers a wide range of LN<sub>2</sub> freezers with TEC3000 controllers that can accommodate a variety of inventory systems designed to meet all of your cryogenic storage needs. Each freezer is a hand-made, double-walled, vacuum-insulated stainless steel Dewar designed to maintain temperature with minimal LN<sub>2</sub> evaporation.

There are several series, or groups, of freezers, each of which offer specialized features and functionality. Each freezer has a descriptive name from which the highlighted features and performance specifications can be determined.

Example: MVE 1536P-190AF-GB

MVE 1500 Series freezer with capacity for approximately 36,000 vials, pie shaped turn-tray dividers, -190°C temperature rating, equipped with a TEC3000, Hot Gas Bypass.

The Battery Backup can be added as an optional accessory for all other models.

MVE (Series) (Capacity) (Turn-tray?) - (Temp?) (Cabinet?) (Full Auto?) - (Gas Bypass?)-(Battery Backup?)

|                          |   |
|--------------------------|---|
| Series                   | MVE Freezer Series (i.e. 800, 1500, 1800)   |
| Capacity                 | Approximate 1.2 or 2.0 mL vial capacity in thousands                                  |
| Turn-tray                | Shape of turn-tray dividers, HE and HEco series only; P = pie-shaped, R = rectangular |
| Temp                     | "Top box" temperature rating, if applicable; -150°C or -190°C                         |
| Cabinet                  | C = cabinet model, if applicable  |
| Full Auto                | AF = Automatic Fill   |
| Gas Bypass               | GB = Hot Gas Bypass, if applicable  |
| Battery Backup           | BB = Battery Backup*  |
| Medical Device Directive | MDD = European Union directive regulating medical device construction and operation.  |

\*Battery Backup is standard ONLY for Medical Device Directive freezers.

Example: MVE 1536P-190F-GB-BB-MDD

## Accessories

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### Hanging Temperature Reduction Sleeves

Chart MVE offers temperature reduction sleeves to help moderate the temperature gradient inside the freezer, resulting in colder temperatures at the top of the inventory system.

|                                |                 |                                |                 |
|--------------------------------|-----------------|--------------------------------|-----------------|
| MVE 500 TEMP REDUCTION SLEEVE  | PN:<br>11062055 | MVE 1839 TEMP REDUCTION SLEEVE | PN:<br>11541241 |
| MVE 1200 TEMP REDUCTION SLEEVE | PN:<br>10742518 | MVE 511 TEMP REDUCTION SLEEVE  | PN:<br>11905227 |
| MVE 230 TEMP REDUCTION SLEEVE  | PN:<br>11900477 |                                |                 |

#### INSTALLATION STEPS:

1. Remove the temperature sensor tube mounting screw using a Phillips screwdriver and remove the sensor tube from the freezer, saving it for reinstallation.
2. Slowly Insert the Temperature Reduction Sleeve into the tank. Care must be taken to prevent damage to the inside of the freezer.
3. Rotate the Temperature Reduction Sleeve into position once the sleeve is inside the freezer. Notice the sleeve has notched cutouts. Align these cutouts with the fill and pressure sensor openings near the bottom of the freezer.
4. Reinstall the temperature sensor tube, tighten-the mounting screw.

## Don't Miss Out on our Upcoming Tradeshows!

| Date             | Show                                    | Location            |
|------------------|---|---------------------|
| June 21-24, 2016 | GGBN Biodiversity Biobanking Conference | Berlin, Germany     |
| July 3-6, 2016   | ESHRE                                   | Helsinki, Finland   |
| Sept 27-29, 2016 | ESBB                                    | Vienna, Austria     |
| Oct 4-8, 2016    | World Dairy Expo                        | Madison, WI         |
| Oct 15-19, 2016  | ASRM                                    | Salt Lake City, UT  |
| Oct 22-25 2016   | AABB                                    | Orlando, FL         |
| Nov 15-18, 2016  | Eurotier                                | Hanover, Germany    |
| Dec 6-9, 2016    | World Stem Cell Summit                  | West Palm Beach, FL |