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## MVE Chart Tech Tips

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January 2014

### PRODUCT INFORMATION

#### NEW Chart Printer Kit

The new printer kit for the TEC3000 will change to an improved printer model, LX-350. The new Epson printer model is more robust and easier to setup. The previous model LX300 will be obsolete. The same part number, **PN: 11544943**, will be used to order the printer kit.



Printer Kit  
PN: 11544943

#### MVE Chart 1800 Series Freezer Crate

The MVE 1800 Series Freezers are now packaged with increased shipping protection. Additional padding has been included at the top of the crate to reduce the risk of shipping damage.





## Revised Step for the MVE 1500 Series

The MVE 1500 Series step has been revised to include a wider footprint by 2 inches (50.8 mm) on both the top and bottom steps. The expansion of the step provides an ergonomically improved work space and a wider standing and working platform. Effective January 17th, 2014 all MVE 1500 Series freezers will be manufactured with the new step. To upgrade a freezer in the field to the new step an upgrade kit is available and may be ordered using **PN: 20757523**. The upgrade kit will also be available starting on January 17th, 2014.

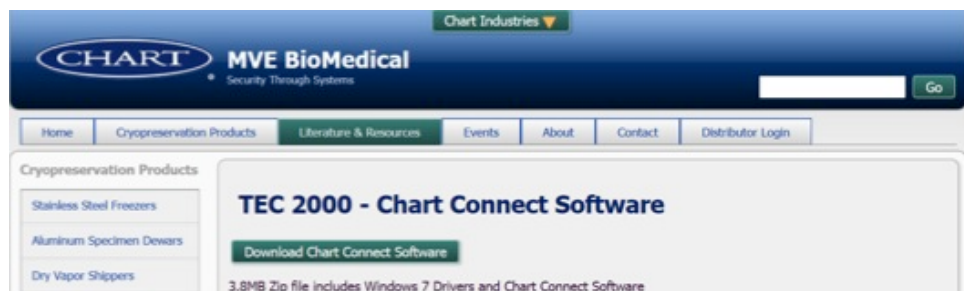
## HELPFUL HINTS / FAQs

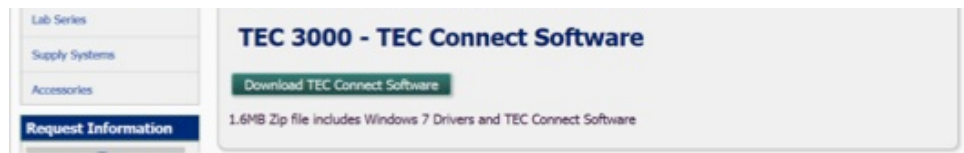
### TEC Connect Software

**Q:** Where is the TEC Connect Software located on the Chart BioMedical website?

**A:** The TEC Connect Software can be accessed by following the directions below or by [clicking here](#):

1. Open a web browser and type in [www.chartbiomed.com](http://www.chartbiomed.com)
2. Hover the mouse over the "Literature & Resources" tab
3. Click on "Software"
4. Select the software you desire to download and save to your Desktop
5. Unzip the folder and extract the files





## TEC 3000 Hot Gas Bypass

Q: What is the function of the TEC 3000 hot gas bypass?

A: The Hot Gas Bypass is a feature of HE, MVE, HEco, or CryoSystem6000AF freezer series equipped with a TEC3000. The Hot Gas Bypass will vent warm nitrogen gas from the supply line before initiating a fill cycle. This prevents warm gas from entering the freezer space. The bypass system helps maintain a stable temperature gradient inside the freezer and increases the efficiency by preventing excess LN<sub>2</sub> evaporation while filling. This feature is advantageous for any freezer setup and is especially ideal for sites where the use of longer transfer hoses cannot be avoided.

When LN<sub>2</sub> inside the freezer normally evaporates to the user defined Low Level Fill set point, the TEC 3000 will initiate a fill. Freezers equipped with the Hot Gas Bypass will allow warm nitrogen gas to vent to the atmosphere prior to the fill via a muffler. A temperature sensor in the plumbing system will sense the temperature of the incoming N<sub>2</sub> gas and when it reaches the user defined bypass temperature the TEC 3000 will engage the fill cycle. The Hot Gas Bypass system works well on liquid nitrogen delivery systems that are moderate in length. The bypass system will allow the LN<sub>2</sub> delivery system to cool substantially before delivering LN<sub>2</sub> into the freezer.

## Changing the TEC 3000 Hot Gas Bypass Settings

Q: How does one change the TEC 3000 hot gas bypass settings?

A: The factory setting for the bypass temperature is -70° C and the bypass time delay is set to five minutes. If one desires to change these set points follow instructions below:

**1. Press "SETUP"**

Controller will prompt for a password

**2. Press "ENTER"**

The display will read "Temperature Menu"

**3. Press "SETUP"**

The display will read "Add-on Menu"

4. Press "ENTER", then Press "SETUP" Until the display reads "Hot Gas Bypass Menu"

5. Press "ENTER", be sure to **ENABLE** the Hot Gas Bypass and press ENTER

6. Press "SETUP"

The current Bypass Temperature Sensor reading will be displayed.

7. Press "SETUP"

The display will read "Bypass Temp Setpoint". Use the UP/DOWN arrow keys to adjust the value and press "ENTER" to save.

8. Press "SETUP"

The display will read "Bypass Alarm Time Delay". Use the UP/DOWN arrow keys to adjust the value and press "ENTER" to save.

## **Operating Instructions for Liquid Nitrogen Dewars**

The SC, XC, & LAB series container is a vacuum insulated container of aluminum with fiberglass neck construction, providing you with the highest efficiency possible in liquid nitrogen storage. The container may be used for inert fluids only. Liquid oxygen is not compatible with fiberglass material and should not be stored. A sharp blow to the outer vessel can damage the neck tube or start a vacuum leak. Always use caution and common sense when handling the container. Upon receipt of the container, examine it for any evidence of damage during shipping. Look for any signs of vacuum loss after the first fill, such as frost or sweating on the outside jacket. (Some frost near the top just after filling is normal.)

### **Filling the Dewar**

Fill the container with a funnel or transfer line when possible. NEVER spill liquid nitrogen over the vacuum seal port on the top head of the tank, as this can shrink the seal and allow air to leak into the vacuum space, destroying the ability of the tank to hold liquid nitrogen.

### **CAUTION (using aluminum SC, XC, LAB series)**

To avoid injury by frostbite, use extreme care whenever handling liquid nitrogen, liquid nitrogen storage or transfer vessels or any objects, which have come in contact with liquid nitrogen.

- Leave no areas of skin exposed.
- Always wear proper safety attire over clothing: face shield, cryogenic gloves, cryogenic apron
- Never overfill liquid nitrogen vessels.
- Always keep liquid nitrogen vessel in an upright position.
- Do not tightly seal liquid nitrogen container or prevent nitrogen gas from escaping.
- Use extreme care to prevent spilling and splashing liquid nitrogen during transfer.
- Immediately remove any clothing or safety attire on which liquid nitrogen has been spilled.
- Get immediate medical attention for any frostbite injuries, due to liquid nitrogen.

### **FILLING INSTRUCTIONS**

To avoid damage to your aluminum cryogenic vessel, which may result in premature vacuum loss, it is important that the following procedure be used during the addition of liquid nitrogen to a warm vessel and on subsequent additions.

1. Slowly pour liquid nitrogen to new or warm vessels.
2. Allow liquid nitrogen to sit in covered vessel for 2 hours to completely cool the interior
3. Fill your vessel to the desired level after the 2 hour settling (cool down) time.
4. If you are filling your Dewar from a pressurized source, make sure that the source tank is at a low pressure (22 PSI or below).
5. If transfer hose is used for extracting liquid nitrogen from a pressurized liquid source, always use a phase separator on the end of the hose.
6. Remember to always wear proper safety attire over clothing: face shields, cryogenic gloves and apron.
7. Never overfill your Dewar with liquid nitrogen. Overfilling the tank may cause immediate or premature vacuum failure to occur.

### **MEASURING LIQUID NITROGEN QUANTITY**

1. Use wooden or plastic dipstick. Never use a hollow tube to measure liquid nitrogen.
2. Level will be indicated by frost line, which develops when dipstick is removed.

### **LIQUID WITHDRAWAL**

1. Liquid withdrawal for the LAB units is always done by pouring or utilizing a withdrawal device. Withdrawal device pressurizes to approximately 5 psi and the

pressure forces liquid up the withdrawal tube out the valve.

2. Always wear proper safety attire: shield, gloves and apron.

## ACCESSORIES

### TEC 3000 Power Supply

The TEC 3000 power supply may be ordered through MVE Chart by using PN: 11795030.

### Canes for Straws and Vials

MVE Chart offers canes to hold straws and 1.0, 1.2, and 2.0 mL vials.

- PN 9717009 1.0 mL vials and straws
- PN 9717029 1.2 mL vials
- PN 9717089 2.0 mL vials



## Upcoming Events

### Trade Shows

We will be present at the following trade shows and would love to see you at our booth!

#### Arab Health Show

January 27-30

Dubai, UAE

Chart BioMedical-CAIRE, AirSep, and MVE products

Stand #1F38

## Contact Us

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