

## MVE Chart Tech Tips

November 2015

### PRODUCT INFORMATION

#### MVE205AF-GB

The MVE 205 freezer provides stable cryogenic storage for up to 3,200 1.2 / 2.0 ml vials. These freezers provide maximum storage density and provide the industry's longest hold time. Although engineered for liquid storage, the MVE Series freezers can be operated in vapor using available vapor storage accessory packs.

#### Features Include:

- Liquid sample storage
- Wide neck opening
- Lowest liftover height
- Largest LN2 capacity

Although this is some years ago, in January of 1999 MVE began manufacturing a new version of the XLC-230. The MVE 205 is the new name and the freezer is available as a Basic and Full Auto.



#### MVE 205 Freezer Options:

##### Basic Freezer

- Freezer without plumbing or level and temperature monitoring

##### MDD Freezer

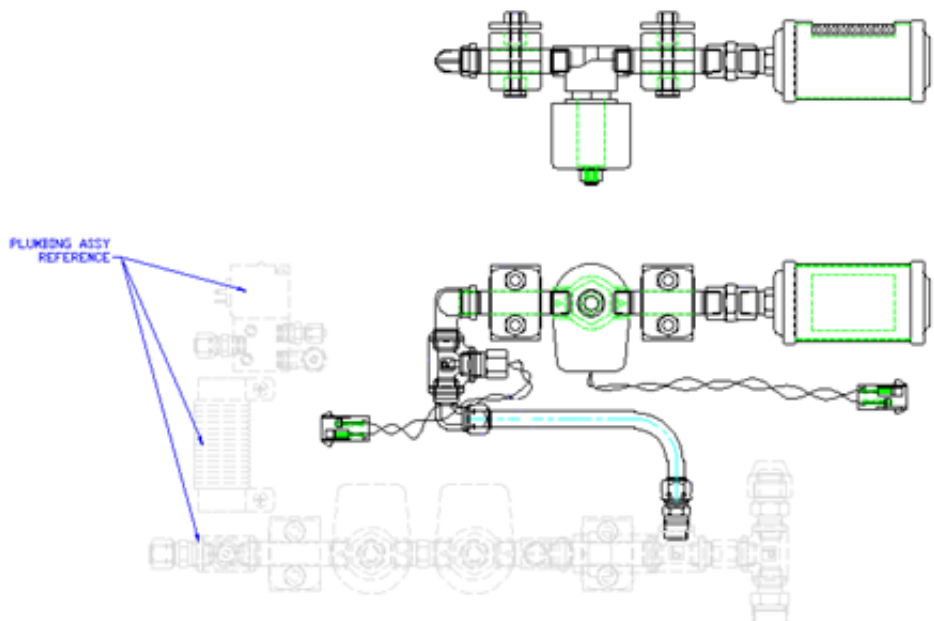
- For European use only
- Complies with the European Medical Device Directive (MDD) Includes
- a controller, plumbing, hot gas bypass, and battery backup

##### Full Auto Freezer with Hot Gas Bypass

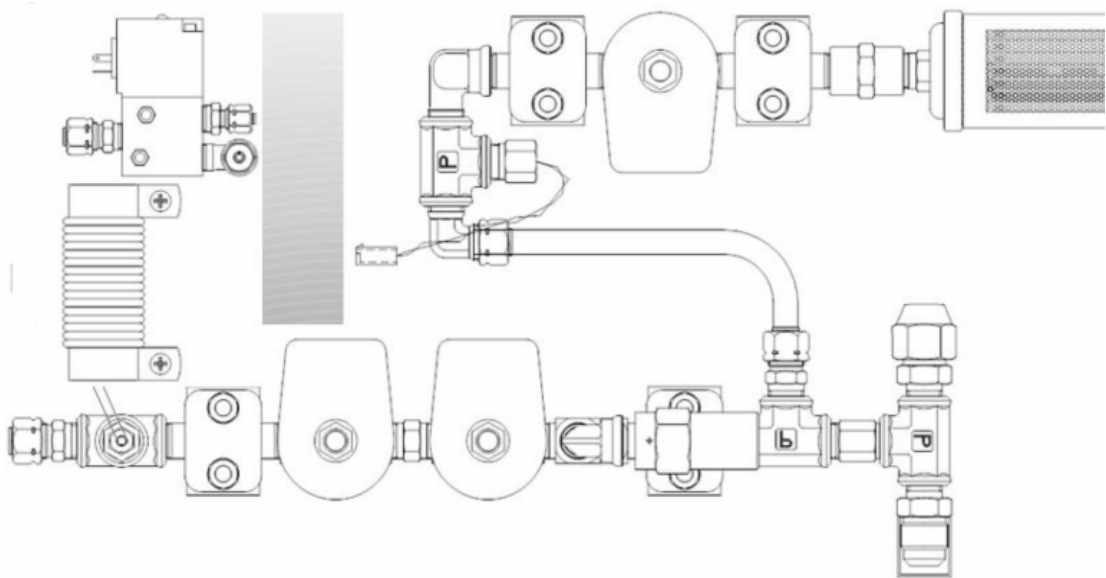
- Includes a controller, plumbing, and hot gas bypass
- Optional battery backup add-on

As many would already know, on January 4, 2010, all Full auto freezers have been equipped with the Gas Bypass circuit. This became the standard equipment. Before this date, the gas bypass circuit was an option. The hot gas bypass feature allows warm nitrogen gas in the supply line to be vent when a fill is initiated. This prevents warm gas from entering the freezer circuit. This helps maintain a stable temperature gradient and help increase efficiency by reducing unnecessary liquid nitrogen evaporation during fill

This feature will increase the efficiency of any supply system whether using liquid cylinders or a large bulk tank and vacuum insulated piping.



Hot Gas Bypass Circuit



Complete plumbing circuit with hot gas bypass circuit

## HELPFUL HINTS / FAQ's

**Q:** What is the recommended time frame to replace the Inline Filter?

**A:** Per the Preventative Maintenance schedule located in the TEC 3000 Manual, replacement for the Inline Filter is recommended every 12 mont

**Q:** What is the procedure to replace the Inline Filter?

**A:** Ensure that the LN2 supply valve is closed and the plumbing assembly vented before removing the inline filter.

1. Close the LN2 supply valve and disconnect the LN2 transfer hose from the plumbing assembly fill tee.
2. Loosen and remove the fill tee and inline filter from the plumbing assembly.
3. Replace the inline filter (PN 11648945) and reassemble the fill tee and filter to the plumbing assembly using new Teflon tape if needed. Ensure the filter is oriented correctly so that the affixed arrow indicates the direction of LN2 flow.
4. Reconnect the LN2 transfer hose, open the LN2 supply valve and check fittings for any leaks.

**Q:** What is the procedure to calibrate the LN2 level?

**A:** This procedure requires the cryogenic meter dip stick supplied with each MVE freezer. This calibration method provides level measurements with a  $\pm 0.5"$  ( $\pm 13$  mm) accuracy. All new freezers equipped with TEC 3000 controllers have been calibrated at the factory. The liquid level should only be calibrated if faulty readings are suspected, the TEC 3000 itself has been replaced, following a firmware update, or as a part of a preventative maintenance schedule.

Note: Always wear protective gloves and face shield when handling LN2. **Dip**

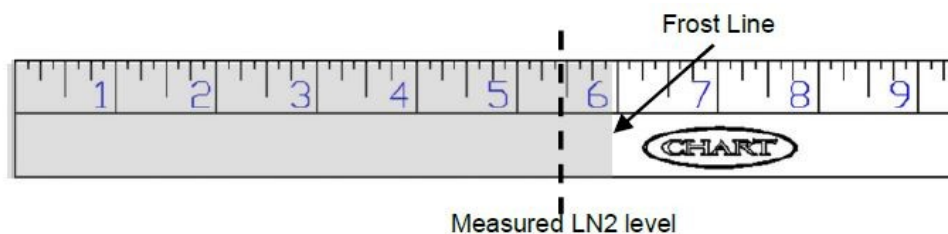
### Stick Procedure

1. Open or remove the freezer lid to access the interior storage space.
2. Hold the meter dip stick vertically with the 0.0 inch end pointed down
3. Lower the meter dip stick into the LN2 at the bottom of the freezer.  
Ensure the meter dip stick is vertical and touching the bottom of the inner Dewar. Some LN2 boiling will occur around the meter dip stick.
  - a. MVE High Efficiency / Vapor Series Freezers:  
Insert meter dip stick into the rectangular channel on the turn tray in order to access the liquid below the tray.

b. MVE Series and MVE Cabinet Series Freezers:

Lower the meter dip stick to the bottom of the freezer as close to the center as possible to obtain an accurate measurement.

4. Leave the meter dip stick in the LN2 for approximately 5 seconds.
5. Remove the meter dip stick from the liquid and immediately wave it back and forth in the air. A distinct frost line will begin to develop as moisture in the air until it condenses on the meter dip stick predominately where it was submerged.
6. Subtract 0.5 inches (13 mm) from the observed frost line to account for the LN2 boiling up around the meter dip stick while it was submerged. The resultant level measurement represents the actual liquid level inside the freezer. Once you have obtained the measured level, proceed to the liquid level calibration.



Meter dip stick showing example level frost line. The resultant measured level would be 5.5 inches after subtracting 0.5 inches from the frost line to account for the LN2 boiling.

Note: LN2 liquid at or above turn tray height will rise higher in the dip stick channel.



Level dip stick inserted to measure the physical liquid nitrogen level

### Liquid Level Calibration

NOTE: Liquid level calibration cannot be performed while the TEC 3000 is filling. If TEC 3000 is filling, press "Stop Fill" and perform the calibration. Allow freezer plumbing to thaw 10 to 15 minutes before calibrating.

NOTE: Liquid level calibration is most accurate when calibrated at 10.0 inches (254 mm). Calibration must be performed above 3.0 inches (75 mm).

NOTE: Security Level 3 or higher is required to calibrate the liquid level.

**1. Press "SETUP"**

Controller will prompt for a password. A flashing cursor will make it clear which digit is being changed. Use the "▲/▼" keys to scroll to the appropriate number. Press "ENTER" to advance the cursor to the next position.

Higher User Level  
Required use ▲ ▼ to  
ENTER Password  
0000

**2. Press "ENTER"**

The display will read "Temperature Menu".

Press ENTER for  
Temperature Menu  
or press SETUP for  
next menu

**3. Press "SETUP"**

Until the display reads "Liquid Level Menu".

Press ENTER for  
Liquid Level menu  
or press SETUP for  
next menu

**4. Press "ENTER"**

The display will read "High Level Alarm".

High Level Alarm  
8.0 in  
Use ▲ ▼ to adjust  
Press ENTER to save

**5. Press "SETUP"**

Until the display reads "Advanced Level Menu".

Press ENTER to  
Advanced Level menu  
or press SETUP for  
next menu

**6. Press "ENTER"**

The display will read "Auto Fill Control".

Auto Fill Control  
ENABLED  
Use ▲ ▼ to adjust  
Press ENTER for next

**7. Press "SETUP"**

Until the display reads "Level Calibration".

Level Calibration  
Press ENTER to  
Start calibration  
or SETUP for next

**8. Press "ENTER"**

The display will read "Please wait while the sensor zeros". Wait for the controller to count down from 60 seconds.

Please wait while  
the sensor zeros  
60 seconds

**9. Wait 60 seconds**

After the controller counts down, the display will read "Actual Level". Use the "▲/▼" keys to input the meter dip stick measured level.

Actual Level  
10.0 in  
Use ▲ ▼ to adjust  
Press ENTER to save

**10. Press "ENTER"**

The display will read "Level Calibration Complete".

Level Calibration  
Complete

**11) Verify that the home screen reads the liquid level value that was just entered. In some cases the controller should be restarted. Contact Technical support with any questions.**



## ACCESSORIES

### Phase Separators



PN#	Description	Use
10615885	Small	AI
10615877	Large	AI
10615869	X-Large	CryoBio

## Roller Base for Aluminum Dewars



PN#	Diameter	Use with:
10937391	14.5"ID	20 L units, SC22/5
10937403	18.2"ID	Lab 30, Lab 50, SC 33/26, XC 34/18
10937411	20" ID	XC 47/11
10937420	22"ID	CryoSystem 2000, CryoSystem 4000
10937438	26.2"ID	CryoSystem 6000

# Cryo Gloves



Made of Nylon Taslan

## Medium Length

PN#	Sizes
9717119	Medium Size
9717129	Large Size
9717139	Extra Large Size

## Elbow Length

PN#	Sizes
9717149	Medium Size
9717159	Large Size
9717169	Extra Large Size