

USER MANUAL

MVE CRYO CART Model# FNLMVECRYOCART



BioMedical

MVE



**CHART
BIOMEDICAL DIVISION
2200 Airport Industrial Drive, Ste 500
Ball Ground, GA 30107**



CRYO-CART Assembly, Model# FNLNVECRYOCART, PN 14448703 (shown above, formerly PN W3170).

CRYO-CART Assembly, Model# FNLNVECRYOCART, PN W3170LT is configured without plumbing and thermometer equipment.

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Receiving Inspection

When your new CRYO-CART arrives, unpack and inspect your CRYO-CART.

1. Visually inspect the packaging.
2. Take the cart out of the packaging.
3. Look for hidden damage and inventory the shipment.

Report Damage

In the rare instance that you find damage, report it immediately to the carrier. Report any missing parts to Chart, Inc. or your Chart distributor.

Components

1. Packet

Packet contents:

- a. User Manual
- b. Limited Warranty Statement
- c. Thank You / Warranty Activation Card
- d. Liquid Nitrogen Container and Handling Instruction Guide

2. Thermometer box (for model PN 14448703 only)

Box Contents

- a. Omega HH507R Digital Thermometer (w/2 type K Thermocouples)
- b. Type T Thermocouple
- c. CD of software for Thermometer
- d. Users Guide for HH507R Digital Thermometer
- e. RS232 -Interface Cable
- f. Certificate of Calibration for the Omega Digital Thermometer
- g. 9-volt Battery

3. Transfer hose (for model PN 14448703 only)

4. Vapor Platform

5. Conduction Sheet(s)

Handling Liquid Nitrogen

Take Precautions when you use liquid nitrogen. Treat liquid nitrogen the same way you would treat boiling water. Direct contact with liquid nitrogen may cause burns and freeze your skin. Good handling of cryogenic samples dictates that you should always wear gloves and eye protection.

More over, nitrogen can displace air in unventilated rooms, so always use a ventilated room and keep the lid on the CRYO-CART whenever possible.

Setup Instructions

After having completed the initial inspection of your CRYO-CART you may begin the set up process.

If these items are not already installed, remove Vapor Platform and Conduction Sheets from the under side of the CRYO-CART. Install the Vapor Platform piping end first using an angle that allows clearance of the Sensor Tube. After the Vapor Platform is lower than this tube it can be inserted the rest of the way in a horizontal position. Use the slotted holes in the ends of the Vapor Platform to hold on to while sliding into the CRYO-CART. After the Vapor Platform is installed, insert a Conduction Sheet between the Vapor Platform and the CRYO-CART, one on each side. See Figure 1.

Figure 1- Vapor Platform and Conduction Sheet



Attach the Digital Thermometer to the mounting bracket on the shelf end of the cart. Open the jaws of the Mounting Bracket by pressing the button on the right hand side. See Figure 2a. Thermometer and bracket supplied on model PN 14448703 only.

After inserting the Thermometer, press the bracket sides towards the Thermometer until it is firmly in place. The Ball and Socket connection located on the Mounting Bracket allows for a full range of positions. Loosen this joint and rotate the Thermometer until the desired position is obtained. **HAND TIGHTEN** the nuts to maintain the position. Periodically check this to insure that it is not loosened during use. See Figure 2b.

Figure 2a - Mounting Bracket (supplied with model PN 14448703 only)



Figure 2b - Mounted Thermometer and Adjustment Socket (Model PN 14448703 only)



Install the type T thermocouple to the thermometer. The thermocouple is installed in the plug on top of the thermometer. Match the + and - signs on the thermocouple with the + and - signs on the thermometer. See Figure 2c, (Model PN 14448703 only).



Figure 2c - Installation of thermocouple into thermometer (match +/-)

Thread the end of the thermocouple through the outside end sensor tube and into the freezer. The end of the thermocouple may be placed at any desired height inside the freezer but should be placed at a height corresponding to the height of sample storage to accurately monitor the temperature of the storage space occupied by the samples.

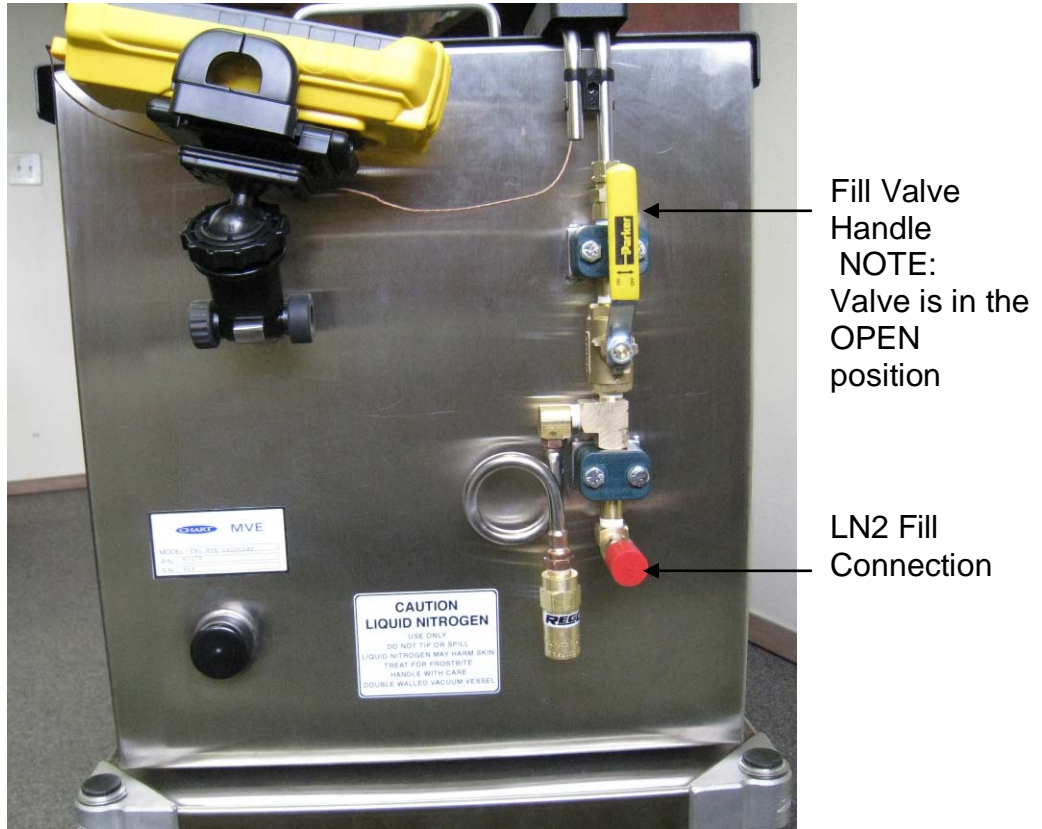
NOTE: The digital thermometer included with the CRYO-CART is produced by OMEGA Engineering Inc.; any questions dealing with the operation of the thermometer should be directed to them. Refer to the Omega Documentation in the documentation packet for contact information.

WARNING: BEFORE CONNECTING LIQUID NITROGEN SUPPLY, INSURE YOU ARE FAMILIAR WITH THE SAFETY PRECAUTIONS NECESSARY WHEN WORKING WITH CRYOGENIC LIQUIDS!!

Connect the transfer hose of a liquid nitrogen supply to the LN2 fill connection on the CRYO-CART. See Figure 3. Once the supply is connected turn the fill valve open. At least one of the lids should be removed during the initial fill of a warm (room

temperature) cart. Fill the container to the top of the vapor platform. Once the desired liquid level is reached the valve should be returned to the off position. The off position for the valve handle is perpendicular (90 degrees) to the flow path through the valve. The on position for the valve handle is parallel to the flow path through the valve. **FOR LIQUID NITROGEN USE ONLY!**

Figure 3: End view diagram of CRYO-CART (model PN 14448703 shown below)



Normal Operating Procedures

LIDS

Insure that both lids are kept on the CRYO-CART when you are not using it.

Lids should only be removed when working with samples or when removing or adding samples to the Cart. Keeping the lids on the Cart will ensure coldest possible storage space and maximize liquid hold time.

At least one of the lids should be removed when filling a warm (room temperature) Cart.

WARNING: BOTH LIDS ARE TO BE IN PLACE ANY TIME WHEN THE CRYO-CART IS BEING MOVED WITH LIQUID NITROGEN IN IT! FAILURE TO HAVE THE LIDS PROPERLY IN PLACE MAY RESULT IN LIQUID NITROGEN SPLASHING OUT OF THE CART!

Liquid Level

The CRYO-CART is designed to have a maximum liquid level that is equal to the top of the working surface of the vapor platform. This liquid level should be refilled when the thermometer indicates that the current temperature in the cart is approaching the maximum (warmest) temperature you desire.

Questions / Parts

For questions or replacement parts, please contact:

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