



Operating Instructions for CMC/CRC Discharge Device

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Introduction

The Cryofab CMC/CRC Discharge Device is designed to facilitate withdrawal of cryogens from Cryofab CFN and CFL Series dewars. The device consists of a manual shut-off valve (CMC only), or solenoid valve (CRC only), a manual pressurizing valve, a pressure gauge and 10 PSI relief valve.

Installation

The Discharge Device may be installed in a dewar whether it is full or empty by placing the seal on the dewar flange and inserting the siphon tube down the neck tube of the dewar. If the dewar is full, use caution and insert the tube slowly. Once in place, fasten the device to the dewar with the wing nut clamp provided. Close the liquid valve (top) and leave the vent valve (lower) open unless another operation is planned. For the CRC Discharge Device, plug the power cord of the solenoid valve into the appropriate outlet of the controller.

WARNING

Never loosen the wing nut clamp unless the dewar is completely depressurized.

Filling

The recommended and safest way to fill the dewar is to remove the Discharge Device completely. Then attach a suitable transfer line to a pressurized liquid source and insert the discharge end of the line, terminating with a tube extension, down the neck of the dewar. To prevent the transfer line from being ejected during the initial pressure surge, ensure the line is secured in some fashion.

If the above is not possible, the dewar can be filled through the Discharge Device by attaching a suitable transfer line, from a pressurized liquid source, to the liquid valve (or solenoid valve) on the Discharge Device.

CAUTION

For the greatest safety all transfer lines used with this device should be equipped with a relief device.

Open the vent valve and the liquid valve. To begin the transfer, slowly open the valve at the liquid source to admit the LN₂. Throttle the flow, if necessary, to keep the dewar from over pressurizing above the relief valve setting until the dewar has cooled down and the pressure peak has subsided.

WARNING

Keep clear of cold exhaust stream from vent valve.

When the dewar is full, liquid will start to exit from the vent valve. At this point, shut off the liquid source valve. When the transfer line has warmed, disconnect it and shut off the fill/withdrawal valve. Leave the vent valve open unless a withdrawal is planned. For CRC Discharge Devices, the solenoid valve is normally closed so it must be energized in order to open it for filling. If your controller does not have an override switch to open the solenoid valve manually then plug the power cord into an appropriate outlet.

Withdrawal

In order to transfer liquid from the dewar, pressurization is required. Introduce room temperature gas of the same composition as the contents, at 5 PSI from a regulated source, through the vent valve.

Attach a suitable transfer line to the liquid valve or solenoid valve. Open the liquid valve as far as necessary to obtain the desired flow rate. When the transfer is complete, close the fill/withdrawal valve, disconnect the transfer line and depressurize the dewar through the vent valve leaving the vent valve open. For CRC Discharge Device, please refer to the operating manual of your level controller for instructions on setting up the automated level control system.

CAUTION

Before operating any cryogenic vessels, please read thoroughly, "[PRECAUTIONS FOR THE SAFE HANDLING AND STORAGE OF LIQUEFIED GASES](#)" included with these instructions, for additional precautions and good practice regarding cryogenics and equipment.

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