Service Document

Compressor Recharge

B-01-SD003_A1

Contact: **North American Service** | support@montanainstruments.com | +1.406.551.2796
International Service | Visit www.montanainstruments.com/contact/Sales-Offices

Applicable Systems: **Cryostation s50, s50-MO, s50-CO, s100, s100-CO, s200, s200-CO**

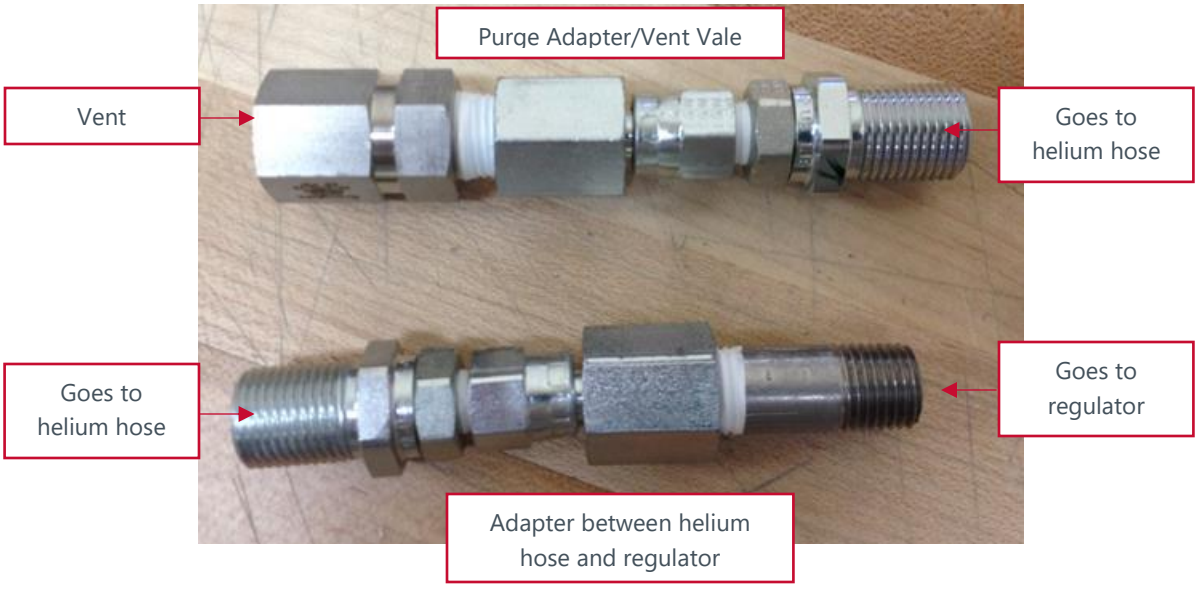
This document covers the procedure for recharging the compressor's helium supply.

Perform a recharge if the pressure in your helium lines when balanced is about 1.55MPa or less on both the supply and return or when you start to get a helium undercharge error once the compressor turns on during normal operation, so the pressure goes to 2 Torr, then the compressor undercharges when it first starts.

To avoid possible contamination to the system, please carefully follow the steps below.

The equipment necessary includes the items below. The accessory kit includes a purge adaptor and adaptor between the hose and regulator. If your system does not come with these adaptors we do have recharge kits available for loan.

- Helium gas cylinder, UHP Helium (99.999). It is recommended to use a new/untouched gas cylinder to avoid the risk of using contaminated gas cylinder by wrong handling.
- High pressure regulator, pressure outlet greater than 1.8MPa
- Charging hose (can use the Return Line)
- Purge adaptor
- Adaptor between hose and regulator



Prior to charging the Compressor Unit the Adaptor needs to be flushed with Helium Gas to avoid air contamination.

1. If the regulator is not already connected to the helium cylinder, then connect regulator to the tank, do not open the gas cylinder yet and be sure the regulator knob is in the decrease position.
2. Attach the adaptor to the regulator. The adaptor will go to the helium hose.
3. The return line should be disconnected from the cryostat and the compressor. Connect the purge adaptor to return hose to vent the helium out of the return line. The helium purging may be loud.

4. Connect the return hose to the adaptor on the regulator. Screw on the hose straight to avoid leaking any helium.
5. Open the gas cylinder and increase regulator to 100psi.

Method 1

6. This method uses the least amount of helium gas:
    a. Once the pressure regulator is set to 100psi, decrease the regulator, and then purge the hose until there is 0 Pressure.
    b. Disconnect purge adaptor, and increase hose to 100psi, decrease, and purge. Repeat this one more additional time.

Method 2

6. This method is quick, but wastes some helium gas:
    a. Leave the gauge set at 100psi. Connect the purge adaptor. CAUTION: The helium may vent loudly.
    b. After 15-20 seconds, remove the purge adaptor.

After both methods, continue:

7. After purge adaptor is removed, turn the regulator up to 245psi. The return hose is now charged and has no air in the line. Turn the knob to decrease.

8. Connect the Return hose to the Return port of the compressor.

9. Turn on the main power switch at the back of the compressor unit, wait for the self-initialization and start up.
10. Press the Display button on the compressor front panel 3 times to display the system pressures. If the compressor pressure is lower than 0.35MPa a warning alarm will go off, so leave the compressor off until the pressure is about 240PSI on the gauge. Note if your entire system has a depleted helium supply, please contact support for different instructions on the recharge of the entire system, not just the compressor.
11. Slowly increase the pressure on the regulator to the specified value: 1.78Mpa +/-0.5MPa, or about 250psi).
12. Check display on the compressor to ensure that the pressure matches the regulator. The supply should be within 0.04MPa of the return pressure.