

Low Temperature CCR User Manual

Startup:

1. Attach sample in desired holder, secure both heat shields, being careful not to over tighten them, and then screw on the outer cover.
2. Open the valve and connect the vacuum port to a turbo pump.
3. Pump the chamber down to the mid 10^{-4} Torr scale before starting the compressor.
4. Turn on the Coolpac (tall blue box) **first**, then turn on the compressor (the smaller grey box).

Operation is now done from the controller by entering a set point.

During Operation:

1. **The compressor should remain on at all times, even when heating to high temperatures. This is to keep the cold stage from over heating.**
2. In the event that either sensor exceeds 340K the heater will be disabled and cannot be re-enabled until the temperature falls below 340K.
3. To keep a good vacuum simply leave the turbo pump on at all times, although it is possible to close the valve and turn the pump off if necessary.
4. If for any reason the compressor stops running turn off the heater and contact someone on the sample environment staff.

Shutdown/Change of Sample:

1. Turn off the compressor **first** and then turn off the Coolpac **second**. Leave the heater on with a set point of 300K.
2. Close the vacuum port valve and turn off the pump, waiting until the four speed indicator lights on the turbo pump are off before removing the hose.
3. Time permitting skip to step five. (Skipping step four adds approximately 2 hours.)
4. For a quicker shutdown/sample change vent the sample chamber with helium. Start by attaching a nipple to the vacuum port then purge the low pressure helium line and nipple and connect them together. Slowly open the valve and then close it.
5. Once the cold stage approaches room temperature then open the outer cover. Using the helium technique this should be approximately half an hour.