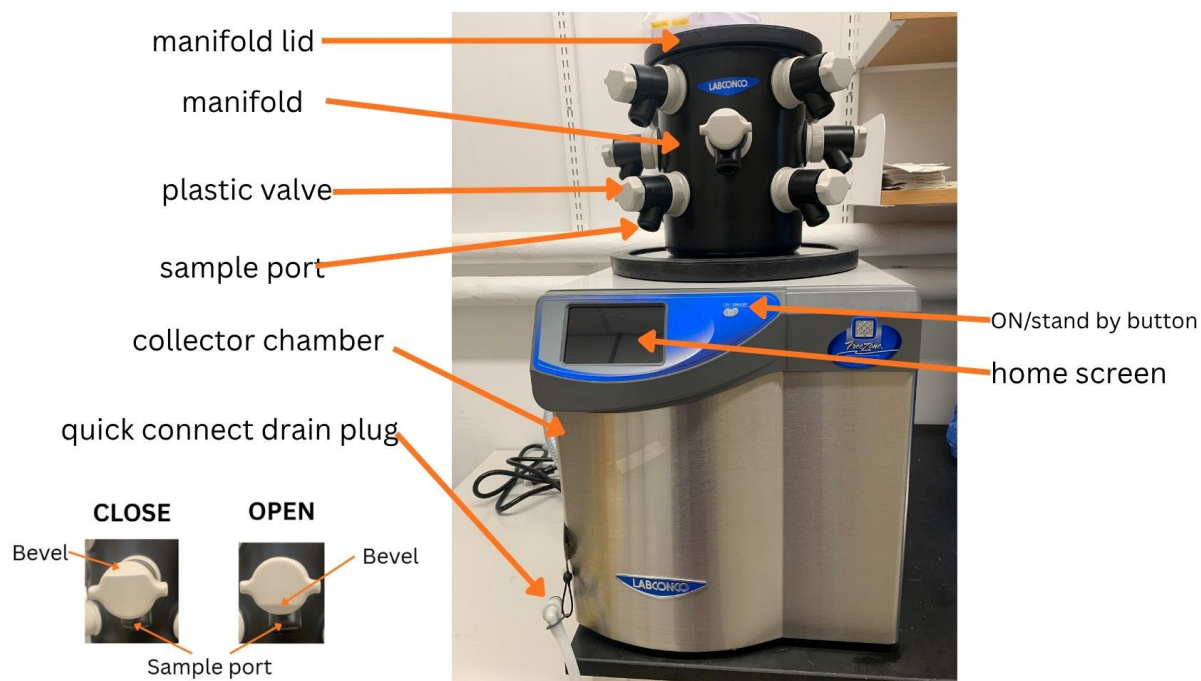


LABCONCO FREEZE DRYER USER INSTRUCTION



Check list before start:

1. On the left side of the freeze dryer, make sure the drain hose is point to the bucket, plug in the quick connect drain plug into the quick connect drain coupling to drain the water from the collector chamber.
2. **DISCONNECT THE QUICK CONNECT DRAIN PLUG before start the freeze dryer!!!** (otherwise the freeze dryer pump will be damaged)
3. Remove the manifold from the collector chamber, use paper wipe of any moister or water inside of the collector chamber. Then remove the lid for the manifold , use paper towel to wipe of any moister or water inside of the manifold.
4. Put the manifold back on to the collecting chamber, AND put the lid of the manifold onto the manifold. **MAKE SURE THE MANIFOLD'S LID AND COLLECTOR CHAMBER ARE BOTH SEALED PROPERLY** before start the freeze dryer.
5. Check each sample volve is in **CLOSE** position (bevel way from sample port)

Start freeze dryer:

1. Wake up the touch screen by touching anywhere on it.
2. At the bottom of the home screen,

- press **COLLECTOR**, then press **START**. The refrigeration system of collector will start immediately. It takes about 10 min for temperature drops to -50°C
 - **When temperature $\leq -40^{\circ}\text{C}$** , press **VACUUM**, then type in the **vacuum set point to 0.133 mbar**. It takes about 15 minutes for vacuum drops to 0.133mbar.
3. Add sample:
- Sample should be pre-frozen
 - Put sample in a freeze drying flask at least 2-3 time bigger than the sample
 - Using a adaptor to connect freeze drying flask (with pre-frozen sample in it) to a sample valve on manifold. Turn the plastic valve knob to the **OPEN** position (bevel toward sample port).
 - Before adding another freeze drying flask with sample, **allow the system vacuum to return to 0.133mbar first**.
 - When all the frost has disappeared from the outer surface of the sample container and no cold spots can be detected by handling the container, the sample is nearly dry. To be certain of low final moisture content, dry the sample for several hours past this point.
 - After drying is complete, turn the plastic knob on the valve to the **CLOSE** position. The sample container may now be removed.

Shut Down:

At the bottom of the home screen,

1. press **VACUUM**, then press **STOP** to turn the vacuum pump off. Then release system vacuum by turning the plastic knob on a valve (**that has no sample attached**) to the **OPEN** position.
2. At the bottom of the home screen, Press **COLLECTOR**, then press **DEFROST** , wait about 10min for the collector to defrost.
3. On the left side of the freeze dryer, make sure the drain hose is point to the bucket, plug in the quick connect drain plug into the quick connect drain coupling to drain the water from the collector chamber. Then **DISCONNECT THE QUICK CONNECT DRAIN**; Remove the manifold from the collector chamber, use paper wipe of any moister or water inside of the collector chamber. Then remove the lid for the manifold , use paper towel to wipe of any moister or water inside of the manifold.
4. Put the manifold back on to the collecting chamber, AND put the lid of the manifold onto the manifold. **MAKE SURE THE MANIFOLD'S LID AND COLLECTOR CHAMBER ARE BOTH SEALED PROPERLY**
5. **FILL IN LOG BOOK AND CLEAN UP THE LAB AREA.**