

Critical Point Dryer Tousimis 931 Operation

1. Open the main LCO₂ Tank valve. LCO₂ Tank should have between 25 lbs – 50 lbs net weight of LCO₂ in order to operate the 931.
2. Turn power switch ON.
3. Press “**Main Menu**” to see all display button.
4. Press “**Auto**” to start Auto Mode Setup.
5. Press “**NEXT**” to advance screen to Auto Mode.
6. Pour 10-15 ml alcohol into process chamber to ensure complete sample coverage. Next, quickly transfer the sample holder into the open process chamber to avoid the samples’ exposure to air and moisture. Make sure the chamber O-Ring lie completely in its groove. Place the chamber lid down over the chamber using the 3 knurl nuts. Tighten each knurl nut hand tight with equal pressure.
7. Press “**COOL**” button once the lid is secure.
8. As the chamber temperature slowly begins to drop, you may hear the LCO₂ circulating through the unit. The 931 will continue cooling by itself until the chamber temperature reaches 0°C (± 5°C).
9. At this cut off point, the cooling will automatically stop and display the message: **Chamber is ready. Press SLOW FILL to START automatic process.**
10. Press “**SLOW FILL**” button to advance. The 931 requires confirmation of chamber security to further continue process. Double check chamber security and press “**CONFIRM**”.
11. The 931 will begin to fill the chamber with LCO₂. *From this point forward, the 931 will automatically advance through all process modes sequentially until completion.* During the SLOW FILL mode, the LCO₂ will enter and fill the Process Chamber slowly.
12. The 931 will advance to FILL Mode. The chamber temperature is automatically maintained below 10°C (± 5°C). This is normal.
13. After the FILL mode expires, the 931 will automatically advance into the PURGE mode. The 931 will remain in the PURGE mode for the duration of process time.
14. Upon completion of the PURGE mode, the unit will automatically advance into a POST-PURGE FILL mode in which the chamber fills with LCO₂.
15. Upon completion of the POST-PURGE FILL mode, the HEAT mode will activate. The HEAT mode is when the samples are carried through the “**Critical Point.**” Both the pressure and temperature will steadily increase.
16. When the chamber pressure reaches and goes beyond 1072 PSI, it will stabilize in the range of 1350PSI (±5% @20°C). As the temperature reaches 31 – 35°C, the unit has achieved the “critical point” and this is where the ‘tousimis equilibrium’ starts. The + sign between the pressure temperature display indicates the process chamber has reached critical point temperature. The **○** sign indicates the process chamber has reached critical point pressure.
17. If chamber pressure has not reached critical pressure to critical temperature “CP Failure” will be displayed.

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18. At the end of the 'tousimis equilibrium' period, the 931 will automatically advance into the BLEED mode.
19. At the preset pressure (factory default: 550 PSI), the 931 will automatically advance from the BLEED mode into the VENT mode.
20. The process chamber should then come to atmospheric pressure after approximately 3 minutes in this VENT mode.
21. When chamber pressure reaches less than 10 PSI, the 931 will display "Process Complete."
22. At this point, the chamber lid may be removed by alternatively and evenly loosening the Knurl nuts (Never attempt to 'force' open).
23. The samples can then be removed from the process chamber. Reseat the process chamber with the chamber lid to help keep it clean and moisture free.
24. Turn system power OFF. Turn LCO₂ tank OFF.