

How to Purge a Vacuum Pump on a Labconco FreeZone® Freeze Dryer



Procedural background and pump types

Over time, the oil in a vacuum pump can become contaminated causing it to become cloudy, accumulate particles or become discolored. The useful life of vacuum pump oil can be extended if the vacuum pump is operated or purged for an extended period after a freeze dry run. This allows contaminants to be purged from the hot oil.

To purge a vacuum pump, the inlet to the pump needs to be blocked off to prevent air from free flowing through the pump. If the freeze dryer has a purge valve, it will isolate the pump from the system. If you do not have a purge valve, closing all sample valves on a dry freeze dry system will “dead head” the pump to block the free-flowing air. If the pump is operated at an elevated vacuum level (>10mBar), oil may be expelled from the pump and damage could occur.

Purging the oil free scroll pump removes any condensed vapors that may have accumulated in the pump from damaging the scrolls.

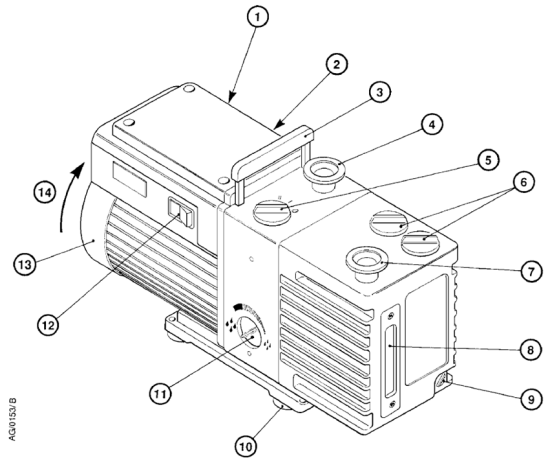
To purge the vacuum pumps, follow these directions. After you are done with your freeze dry run, you need to purge. Remove samples but leave the refrigeration running. Use the purge valve if your unit has one, or make sure the ports are closed on the drying chamber or manifold. On tray dryers, close the door and latch it. The system must be under a complete vacuum with no leaks.

Relevant Pump Types

- Rotary vane pumps
- Hybrid pumps
- Scroll pumps

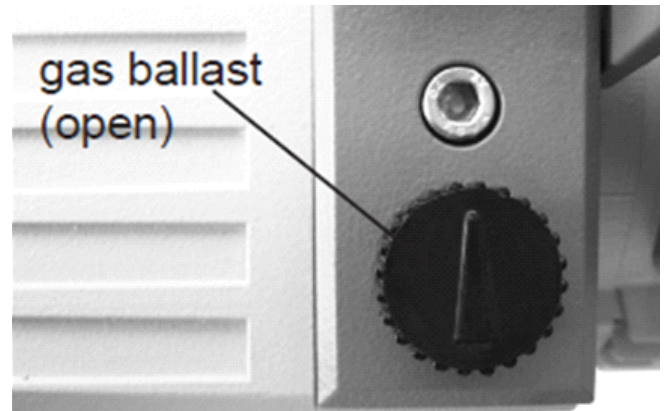
Rotary vane pumps 117 or 195L/min

Once the system is ready, turn the gas ballast, number 5 in the illustration, to “I” and let run for 20 minutes. After the purge, make sure the gas ballast is returned to 0 for normal operation.



Hybrid Pump

On the hybrid vacuum pump, turn the gas ballast cap 180° toward the inlet of the vacuum pump labeled “Gas ballast.” Let run with the purge open 20 minutes. To close the valve, turn the cap 180° away from the label gas ballast.



Scroll Pump

Turn the gas ballast to “On” position 1, and let the pump run for 20 minutes. After the purge turn the knob back to 0 to achieve ultimate vacuum.

