



Know Your Liquid Nitrogen Dewar (AKA Vertical Gas Liquid (VGL) Cylinder or Tank)

VGLs come in different sizes and pressures. Choose the correct pressure for your intended usage. If you obtain the incorrect pressure, return to the gas vendor. Do not try to use adapters. Pressure color code is below.

Yellow – 22 psi
Blue – 230 psi

Orange – 350 psi
Red – 550 psi



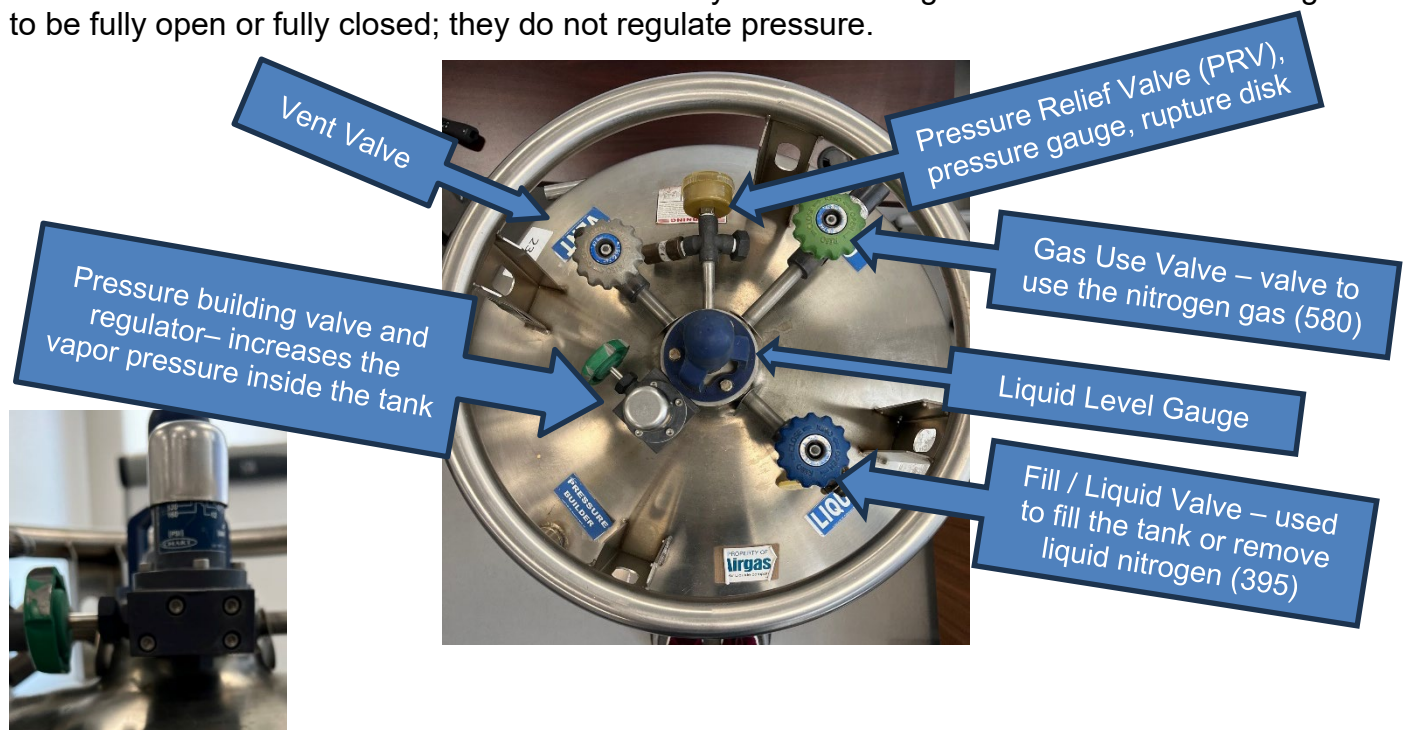
Moving the VGL

A 240L 22 psi tank of Liquid Nitrogen can weigh over 700 pounds! Moving the tank is one of the major risks in handling liquid nitrogen.

- When moving Dewars, always PUSH the tank slowly.
- Use two hands on the handles and/or halo to steer the Dewar.
- Do not stand in the path of movement or try to pull the weight of the Dewar as this can cause injury.
- Be mindful of wheel positioning when crossing over door jams or uneven ground.
- Dewars can vent unexpectedly during transport through the PRV due to agitation of the liquid inside. This is normal.

Understand the Valve System

The tank serves as a container. The valves allow you to use the gas inside. Valves are designed to be fully open or fully closed; they do not regulate pressure.



Liquid Nitrogen FAQs

1. What are the numbers on the sides of the gas valves?

The numbering convention prevents unwanted mixing of different gases. All gas valves on nitrogen tanks are numbered '580' and liquid valves are numbered '395'.

2. What can I do if the tank seems to vent excessively?

A 240L 22 psi tank can vent as often as 15 minutes through the PRV, which is no cause for

concern. If this occurs more frequently, check for two potential causes. If neither of these stops the venting, move the tank to the loading dock and call your gas vendor. Leave a note on the tank to let the technician know what you observed.

a. *Cause One: Ice buildup in the relief valve.* Especially on hot days, when the nitrogen tank vents cold gas, ice can form in the valve and hold the valve open.

Solution: Pour warm water over the valve to melt the ice.

b. *Cause Two: Pressure builder is left open.* An open pressure builder continues to raise pressure to the threshold at which the tank is designed to vent, thus causing the tank to vent more often. **Solution: Close the pressure builder valve. The tank should vent the remaining pressure and return to normal.**

3. What is a pressure building valve and how does it work?

When the pressure building valve is open, liquid nitrogen is sent through coils that run through the warmer external part of the tank to vaporize the liquid. You may observe ice build-up at the bottom of the tank due to removal of heat from the tank exterior. Vapor is sent back to the top portion of the tank to build pressure. You can use this valve to increase tank pressure for certain applications or because gas is low. Wait approximately 30 minutes before using so pressure can build. The tank will vent if pressure builds too quickly.

4. Should I touch the pressure relief valve (PRV) to adjust pressure?

Do not adjust the PRV. The tank is designed to vent if the tank overpressures. The rupture disk will pop out if pressure builds beyond the relief valves' capability.

5. What if there is ice buildup on the top/center of the tank?

Ice buildup can occur due to venting, active use of the tank, or an open/leaky valve. When the weather is hot or humid, ice buildup happens more frequently. If an ice block forms on the Liquid Level gauge while not actively using the tank, move the tank to the loading dock and call the vendor. If there is a small amount of ice and you can access the Gas or Liquid valves that may be open, close them. If the vent valve is open accidentally, close it. (*This is the valve you can turn – not the pressure relief valve that you should not touch*).

6. What if a Dewar falls over?

Let it fall. Unlike gas cylinders, nitrogen tanks do not pose explosion or propulsion risks. A falling 700 pounds can injure you. Alert EHS and recruit a **team** of people to return the Dewar to a vertical position.

7. Can I use a dented liquid nitrogen tank?

Yes - the interior capsule is where the liquid nitrogen is held; the outer tank, which is what dents, encloses the coils that convert liquid to gas. A cold spot in the tank exterior indicates interior capsule damage. Tanks are inspected at pickup and tested every 10 years.

8. What if a tank has two relief valves?

The tank can hold two pressure settings, one activates at 22 psi, the other at 230 psi. The tank pressure is set upon ordering and should not be adjusted.

9. What if I order a high-pressure tank by mistake?

Return it to the loading dock and call the vendor. Dispensing liquid is dangerous and dispensing gas is extremely loud. Venting from a high-pressure tank is so loud that you will likely require ear plugs to move it.