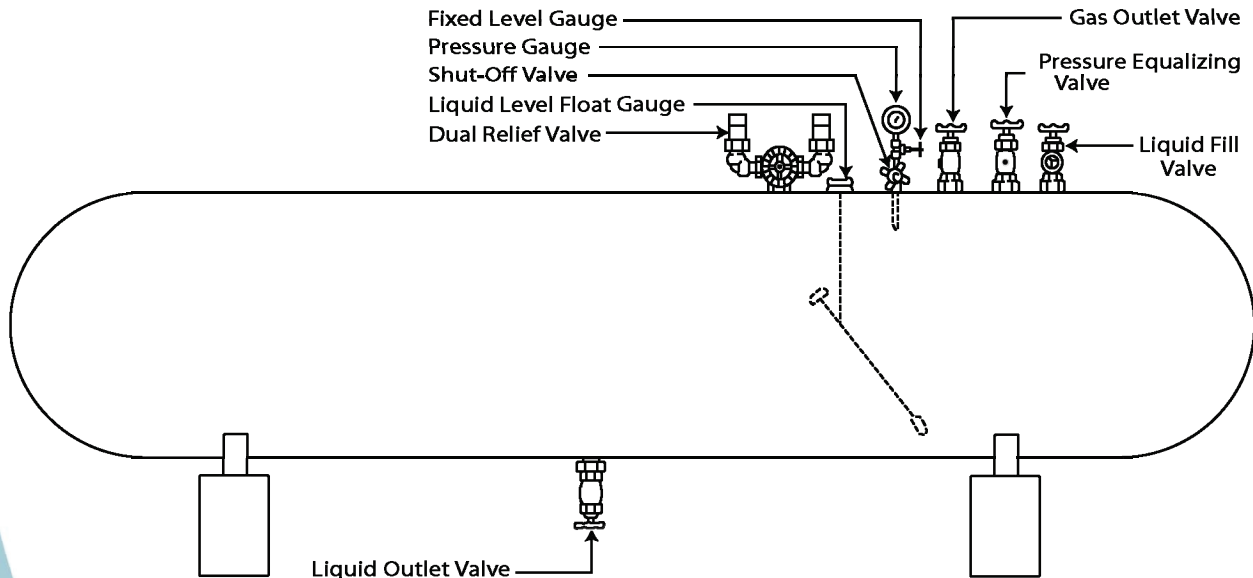


TYPICAL HORIZONTAL ANHYDROUS AMMONIA STORAGE TANK



Anhydrous ammonia storage tanks supplied by Airgas Specialty Products are constructed in accordance with ASME Code for Unified Pressure Vessels (Section VIII). Each tank is inspected, tested, and stamped by an inspector qualified by the National Board of Boiler and Pressure Vessel Inspectors.

The standard arrangement of storage tank openings shown in this drawing are suitable for most ammonia storage systems. It is possible to order tanks and tank openings designed to meet specific unique requirements.

Functions of Storage Tank Components

Liquid Fill Valve Assembly

A delivery hose is connected from the tank truck to this valve opening. The storage tank is then filled to a maximum of 85% by volume with liquid ammonia through this assembly. This assembly includes an excess flow valve.

Pressure Equalizing Valve Assembly

This assembly provides for equalizing vapor pressure between the storage tank and the tank truck to facilitate a faster and more efficient delivery. This is particularly necessary when the pressure in the storage tank is higher than the pressure in the tank truck. The pressure equalizing valve assembly also includes an excess flow valve.

Dual Vapor Pressure Relief Valve Assembly

The pressure relief valves protect the storage tank from internal vapor pressure in excess of the tank design working pressure. A three-way dual shutoff valve makes it possible to take one relief valve out of service while maintaining full protection with the other relief valve and without the need to empty the tank.

Liquid Level Float Gauge

The dial on this gauge is calibrated in percentage of tank volume to indicate what volume of liquid NH₃ is in the storage tank. A metal bulb floating on the surface of the liquid ammonia actuates an indicator pointer on the dial.

Pressure Gauge & Fixed Level Gauge Assembly

This assembly serves two functions. The pressure gauge indicates the vapor pressure within the storage tank. The fixed level gauge provides a secondary system to determine that the tank is not filled to more than 85% of volume in accordance with OSHA requirements. The fixed level gauge is a dip tube that projects downward inside the tank to the 85% level. When the bleed valve on this gauge is opened, a very small amount of either liquid or vapor will be released, depending on the liquid level within the tank. A shut-off valve in the assembly can isolate both the pressure gauge and the bleed valve portion of the fixed level gauge in case maintenance is required.

Vapor Outlet Valve Assembly

Process piping is connected here and/or to the liquid outlet valve. Anhydrous ammonia vapor can be withdrawn from the storage tank to process through this assembly. It is protected by an excess flow valve.

Liquid Outlet Valve Assembly

Process piping may be connected here if liquid ammonia is to be used. This is usually the only opening located on the bottom of the storage tank. It is protected by a hydrostatic (liquid) pressure relief valve and an excess flow valve.