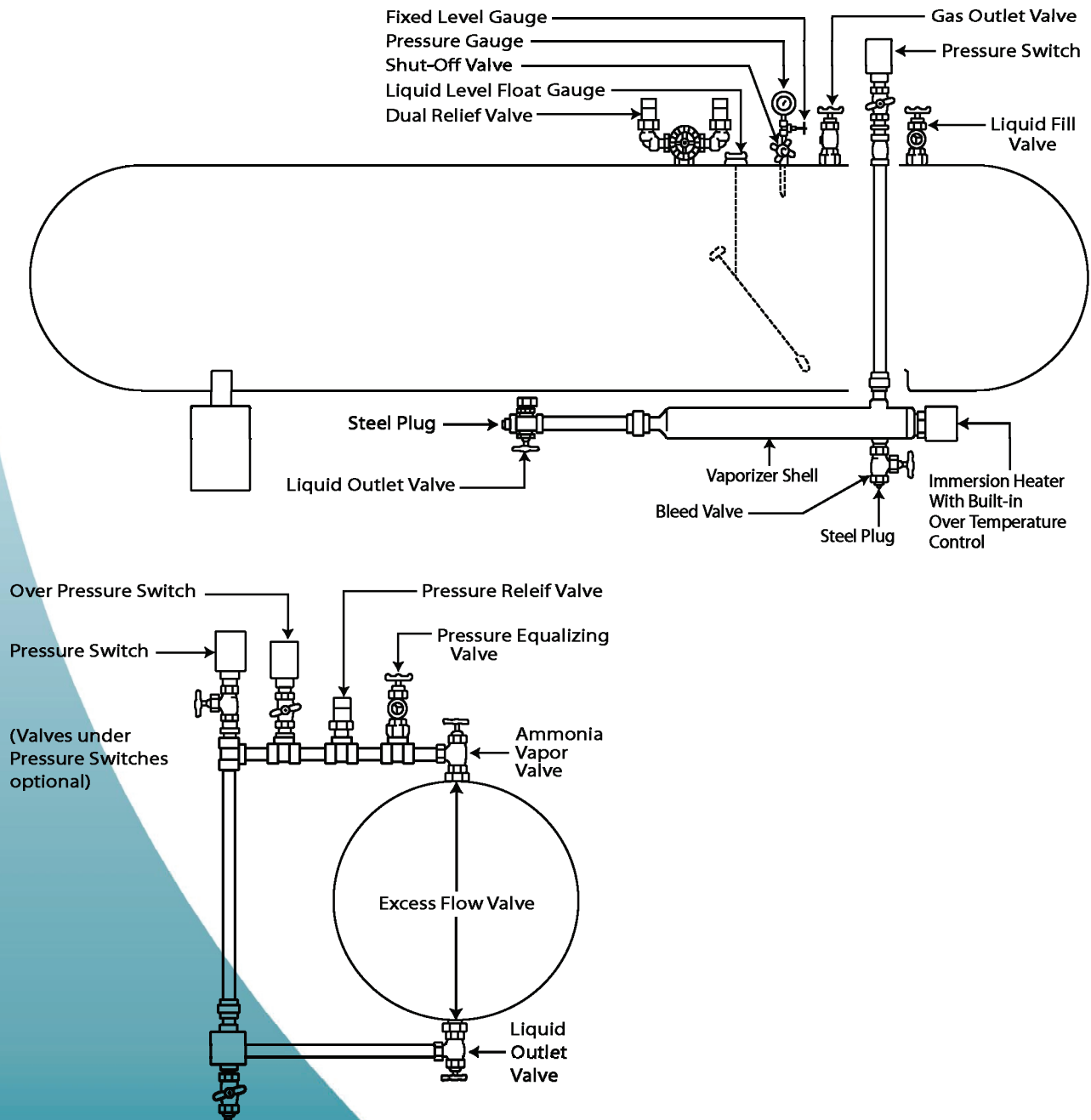


## ANHYDROUS AMMONIA VAPORIZER SYSTEM



### Purpose

The primary function of most ammonia vaporizer systems is to provide a supply of ammonia vapor adequate for a specific requirement. This is accomplished by the vaporization of liquid phase ammonia. In some cases vaporizers are used to maintain a minimum or additive pressure within the storage tank so that liquid ammonia can be transferred and/or metered from the tank.

## **Operation**

Liquid anhydrous ammonia flows into the vaporizer housing where the electrical immersion heater is located. When the pressure falls below a pre-set lower level, the heater is turned on automatically by a pressure control switch. Liquid ammonia is vaporized and returns to the top of the tank until the pressure within the system reaches a pre-set upper level, at which point the heater is turned off by the pressure control switch.

## **Operating Precautions**

A supply of liquid ammonia must be available at all times to immerse the heating elements. The storage tank liquid outlet valve supplying the vaporizer housing and its associated excess flow valve must remain open for operation.

The storage tank vapor return valve connecting the vaporizer housing outlet to the top of the storage tank must remain open for operation.

In a side-arm vaporizer of the type shown, closure of either the storage tank liquid outlet valve or vapor return valve during operation will cause the heater elements to overheat and "burn out". Blistered paint on the vaporizer housing is an indication of heater burn out.

## **Safety Features**

1. Materials of Construction:
  - Vaporizer Housing*- The vaporizer housing is fabricated using Schedule 80 XH Black Iron Pipe.
  - Vaporizer Housing Couplings*- The couplings used to fabricate the housing are 2000# minimum forged steel.
2. Pressure Relief Valve: Each vaporizer system is protected by a suitable pressure relief valve. A hydrostatic pressure relief valve installed in the body of the storage tank liquid outlet valve also protects the system.
3. Safety Over-Pressure Switch: A second pressure switch functions as a safety-over pressure control, turning off power to the heater elements at a pre-set pressure level.
4. Electrical Equipment: All electrical equipment provided by ASP is UL approved.
5. Drain Valve: A drain valve is supplied on the bottom of the housing to facilitate blow-down of the vaporizer system for maintenance purposes.

## **Maintenance**

1. If the vaporizer is not in service during the warmer months or during shutdown periods, it is good practice to inspect all electrical and threaded connections before placing it back into operation. An ammeter can be used to determine if the immersion heater is functioning properly. Some users wire a small panel light into the vaporizer circuit to indicate whether the heater is on or off.
2. Valves can be installed under the pressure switches to eliminate the necessity of draining the heater housing in order to perform switch maintenance. However, care must be taken to ensure that these valves are open during any operation of the vaporizer. Unions are installed at both ends of the heater housing to facilitate removal for maintenance purposes.