

# PRODUCT PROFILE

## ANHYDROUS AMMONIA



### ANHYDROUS AMMONIA CYLINDER VALVE – USE OF THE DIP TUBE

The anhydrous ammonia cylinder valve with dip tube (See Fig. 1) is so designed that either gas or liquid ammonia may be withdrawn when the cylinder is in the horizontal position. Basically, the dip tube permits withdrawal of the liquid ammonia without having to turn the cylinder upside down to do so.

Special attention should be called to the fact that the dip tube inlet and the valve outlet face directly opposite. The valve is always furnished in this manner unless otherwise specifically stated to the contrary.

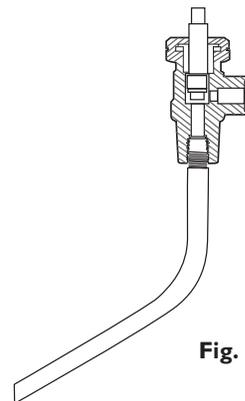


Fig. 1

### VAPOR WITHDRAWAL

When the cylinder is in the vertical upright position (See Fig. 2) only the vapor ammonia can be withdrawn. This is because the dip tube inlet is always in the ammonia vapor phase even when the cylinder is exposed to high ambient temperatures.



Ammonia cylinders are filled to 88% of their maximum volumetric capacity at 65°F. Should these cylinders be stored in a hot place or in the sun, the ammonia upon heating will expand, raising the liquid level. It is possible that under excessive storage temperatures, the liquid level would rise above the lower end of the dip tube. The cylinder would then discharge liquid ammonia until the liquid level falls below the tip of the dip tube. Therefore, cylinders should always be stored in a cool place.

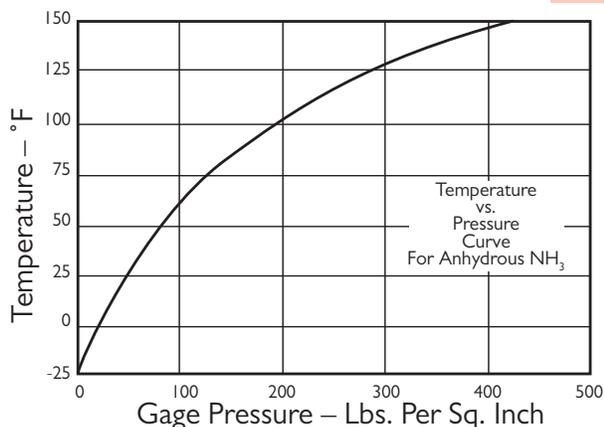
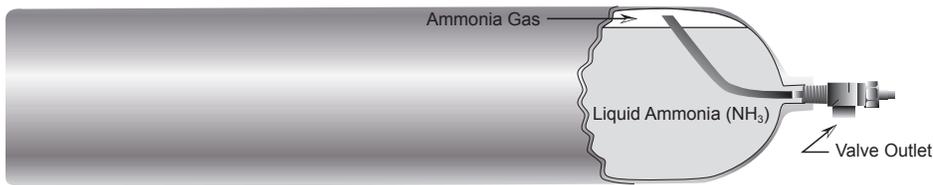


Fig. 2  
Cylinder in Vertical Upright Position



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**Fig. 3**

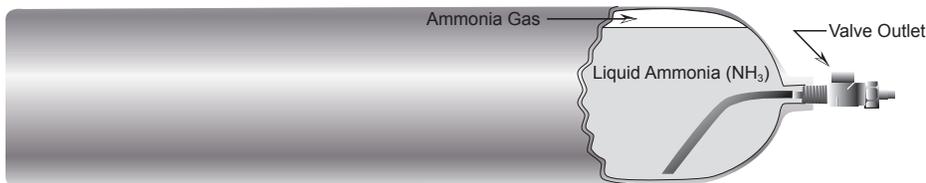
**Cylinder in Horizontal Position for Vapor Withdrawal**

To withdraw ammonia gas from horizontal cylinders the cylinders should be placed so that the valve outlet points downward, (See Fig. 3). In this position the end of the dip pipe is located in the ammonia vapor phase. Care should be taken to make sure that the horizontal cylinder is practically level.

As a comparison a 150 lb. ammonia cylinder standing vertically may be expected to deliver to dryness up to 30 cubic feet of ammonia gas per hour, whereas the same cylinder placed horizontally will yield up to 50 cubic feet per hour to dryness.

**LIQUID WITHDRAWAL**

Liquid ammonia can be removed only when the cylinder is in the horizontal position and only when the valve outlet faces up, (See Fig. 4). The valve dip tube will then be immersed in the liquid ammonia. In general, it is considered good practice to lay the cylinder down with the butt end about 2 inches higher than the valve end. This will ensure the most complete withdrawal of liquid ammonia from each cylinder.



**Fig. 4**

**Cylinder in Horizontal Position for Liquid Withdrawal**

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(800) 336-3911



**Hill Brothers Chemical Co.**  
Corporate Office  
1675 North Main St.  
Orange, CA 92867-3499  
(800) 994-8801  
www.hillbrothers.com

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