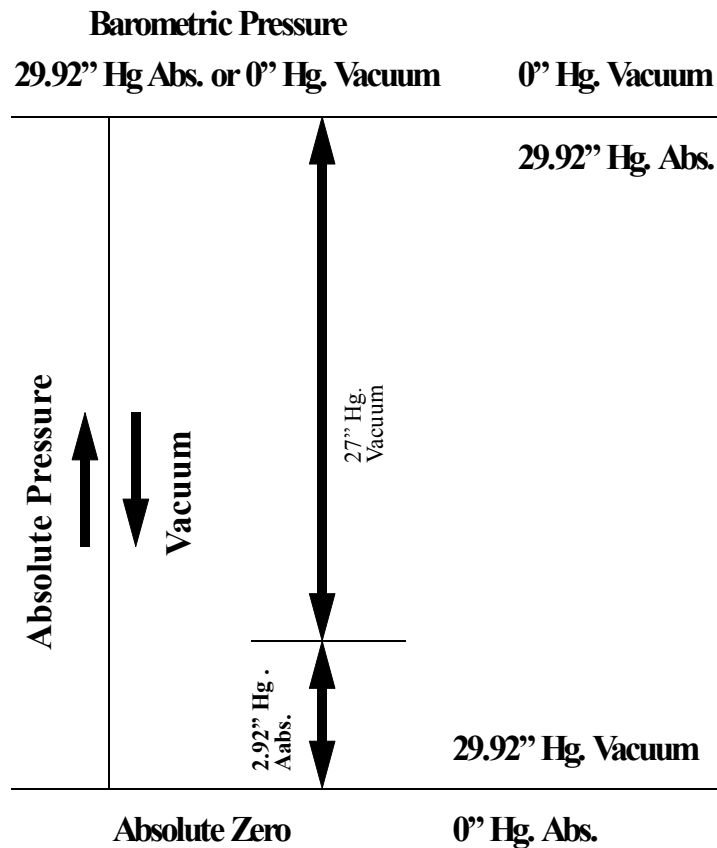


INTRODUCTION TO VACUUM

As mentioned in the terminology, "vacuum" refers to the region of pressure below atmospheric pressure. Atmospheric pressure can be measured in a number of ways. At sea level the standard pressure is 14.7 PSIA or 29.92" of mercury (Hg.) Abs. or 760 mm of mercury Abs. (Torr). These sea level pressures are used as a reference point since the barometric pressure varies depending upon the altitude.

Vacuum can be measured in two ways. One method is as *gauge vacuum (HgV)*, where the scale starts at 0" Hg. and goes up to 29.92" Hg, which is a perfect vacuum. The other method is as *Hg. Absolute (Hg.A)*, which is a gauge with a reversed scale. Here the gauge would read 29.92" Hg. at atmospheric pressure and 0" Hg. at perfect vacuum. Due to the fact the atmospheric pressure varies, it is recommended that reference should always be made in terms of absolute pressure.



Example:

With a barometric pressure of 29.92" Hg. a vacuum of 27.0" Hg. is equivalent to an Absolute Pressure of: $29.92" - 27" = 2.92" \text{ Hg.}$

Whereas when barometric pressure is 28.8" Hg. A vacuum of 27" Hg. is equivalent to an Absolute Pressure of: $28.8" - 27.0" = 1.8" \text{ Hg.}$

Regions of Vacuum are placed in 3 categories. The first category is *low vacuum*, which has a pressure within 760 and 25 Torr. Secondly, there is *medium vacuum* with pressure between 25 to .001 Torr. Finally, *High vacuum* exists with pressures from .001 to .000001 Torr, which approaches a perfect vacuum.



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