

Worcester® Series 44 ball valves are used in a wide range of vacuum services. Standard valves with no special preparation can be used effectively in vacuum service down to 20 microns. Valves especially prepared for high vacuum service can be used below 20 microns, down to 10^{-6} mm. Hg. There are various ways of measuring vacuum service which can result in confusion as to what a rating means. Some of the more common measurements for vacuum service are given below.

1. Atmospheric pressure (sea level, 0°C) = one atmosphere
2. 1 Atmosphere = 760 millimeters of Mercury (mm. Hg)
3. 1 Atmosphere = 29.92 inches of Mercury = 14.7 lbs./sq./in.
4. 1 mm. Hg (1 millimeter of Mercury) = .0013 atmosphere (roughly 1/1000th of an atmosphere)
5. 1 micron Hg = .001 millimeters of Mercury
6. 1 micron Hg = .0000013 atmosphere (roughly one millionth of an atmosphere)
7. Hg is the symbol for Mercury
8. mm. = millimeters
9. Typical leakage unit = 1 standard cc per second = 1 cubic centimeter of gas at atmospheric pressure (often shortened to cc/sec)
10. 1 Torr = 1 millimeter of Mercury

The relationship of various levels of vacuum service to standard atmospheric conditions (29.92 in. Hg or 14.7 lbs./sq. in.) can be illustrated by a column of Mercury of one atmosphere, and then indicating how vacuum is measured on that basis. The following two illustrations point out this relationship.

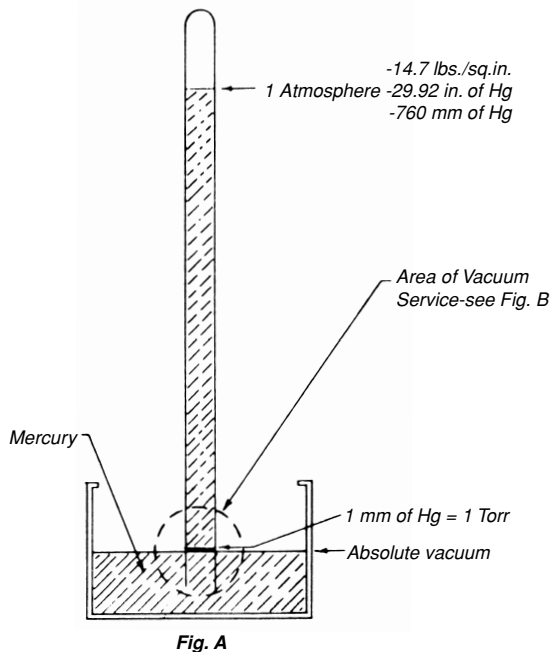


Fig. A

NOTES:

1. The pressure of the atmosphere at sea level on a standard day will raise the level of Mercury in a tube to a height of 760 mm.
2. As the pressure is reduced the column of mercury in the tube will drop. If the pressure is reduced to zero (absolute vacuum), the level of mercury in the tube will be at the level of the mercury in the container.

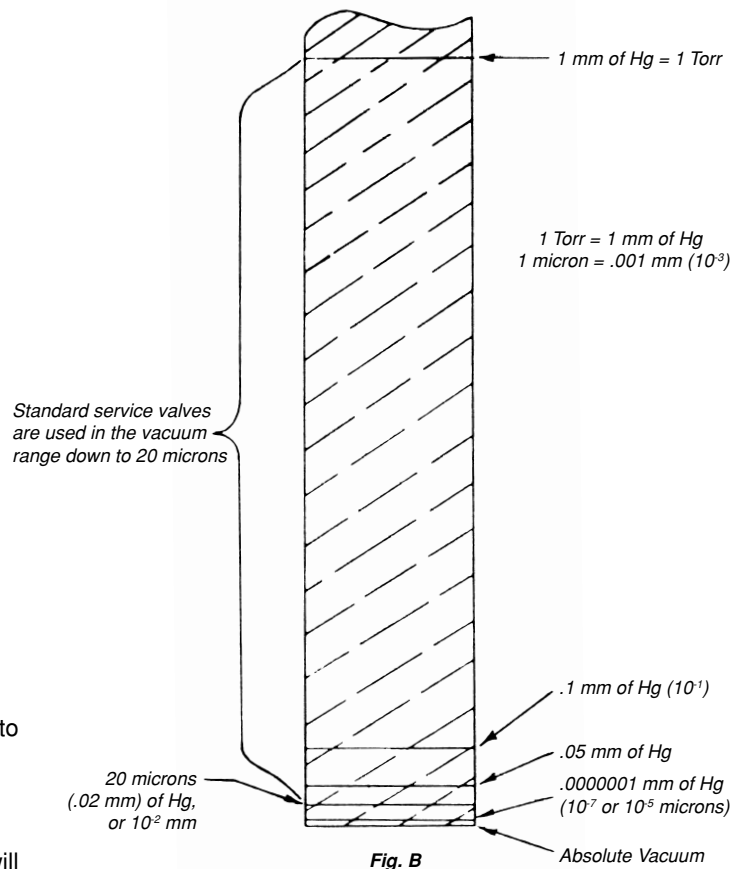


Fig. B