

## INSTRUCTIONS FOR DISPLACEMENT METER CALCULATOR

The displacement meter calculator can be used to figure the gas rates through displacement meters at various pressures, and it can be used to correct quantities of gas at pressures ranging from 15" mercury vacuum to 600 lbs. gauge pressure to the standard cu. ft. at 30" of mercury or ounces pressure.

When figuring gas that is saturated with water vapor to gas on a dry basis, deduct the vapor pressure of water from the gauge pressure reading. When figuring gas that is saturated with water vapor to gas on a saturated basis, the vapor pressures should be deducted from the gauge pressure reading also deducted from the pressure base.

The vapor pressure of water is shown on the back side of the rule in inches of mercury and lbs. per. sq. in. at different gas temperatures in order to make these deductions when figuring gas saturated with water vapor. Example—To figure 21 MCF of dry gas at 60°F. and 20 lbs. gauge pressure to a standard cu. ft. of saturated gas at 60° and 30" mercury, set 29.5 inches mercury (30-0.5) opposite 20 lbs. gauge pressure then opposite 21 MCF will be 50 MCF.

If the uncorrected gas in the above example is saturated with water vapor then 0.25 lbs. (0.5" mercury) should be deducted from the 20 lbs. or use 19.75 lbs. gauge pressure. Set 29.5" mercury (pressure base) opposite 19.75 lbs. gauge pressure, then opposite 21 MCF will be approximately 49.6 MCF.

The gauge pressure and inches of mercury scales are based on an atmospheric pressure of 14.4 lbs. or 29.32 inches of mercury. In using this rule at high altitudes or localities where the atmospheric pressure varies considerably from 14.4 lbs. (29.32" mercury) the difference between the actual atmospheric pressure and 14.4 lbs. should be deducted from the gauge pressure on the rule in order to obtain the true pressure. For example—In a locality where the atmospheric pressure is 13.4 lbs. (27.28" mercury) and the gauge pressure is 17 lbs., deduct 1 lb. from the gauge pressure or use 16 lbs. This deduction has considerable effect at low gauge pressures.

To find the pressure correction factor or multiplier used in the example shown on the back side of the rule under 100 cu. ft. will be 204, the multiplier being  $204 \div 100$  or 2.04. 5 MCF multiplied by 2.04 is 10,200 cu. ft.