

PRESSURE MEANING BOYLES LAW

Boyles Law

$$V_1 \times p_1 = V_2 \times p_2 = \text{constant, or } \frac{V_1}{V_2} = \frac{p_2}{p_1}$$

Where V = gas volume and p = gas pressure

When a temperature of an enclosed sample of gas is kept constant and the pressure doubled, the gas volume is reduced to half that of the previous volume

Charles law

$$\frac{V_1}{V_2} = \frac{T_1}{T_2}, \text{ or, transposed } V_2 = \frac{V_1 \times T_2}{T_1}$$

Where V = gas volume and T = temperature

At constant pressure the volume of gas varies in direct proportion to a change in temperature.

Gay-Lussac's Law

$$\frac{p_1}{p_2} = \frac{T_1}{T_2}, \text{ or, transposed } p_2 = \frac{p_1 \times T_2}{T_1}$$

Where T = temperature and p = gas pressure

When a volume of a gas is held constant the pressure exerted by the confined gas is directly proportional to the absolute temperature of the gas

General Gas Law

$$\frac{p_1 V_1}{T_1} = \frac{p_2 V_2}{T_2} \text{ or } \frac{pV}{T} = \text{constant}$$

Where V = gas volume T = temperature and p = gas pressure

Combination of the above three gas laws

Source: Anonymous (2000), *Compressed Air Treatment Catalog 2000*, Colorado: Wilkerson Corporation.

