⊛ Exp. # 2 :- Calibration of Bourdon Pressure Gauge

⊛ Calculations :-

- Pressure $= \dfrac{\text{Force (KN)}}{\text{Area } (m^2)}$ (9) ↓

$$\rightarrow \text{Force (KN)} = \frac{\text{Weight (Kg)} * 9.81}{1000}$$

$$\rightarrow \text{Area } (m^2) = \frac{\pi D^2}{4}$$

D: Diameter of Piston

$= 0.01767\ m$

- Gauge Errors :-

1- Absolute Gauge Error :

$= |\text{Gauge Reading} - \text{Calculated Cylinder Pressure}|$

$= |G - P|$

2- Percentage Gauge Error :

$$= \frac{\text{Gauge Reading} - \text{Calculated Cylinder Pressure}}{\text{Calculated Cylinder Pressure}} = \frac{|G-P|}{P} \times 100\%$$

* Results: (Tables)

Diameter of Piston, D (m)	Area of Piston, A (m^2)	Weight of Piston, W_P (kg)	Added Weight, W (kg)	Total Weight, W_T (kg)	Calculated Cylinder Pressure, P (kPa)	Gauge Reading, G (kPa)	Absolute Gauge Error (kPa)	Percentage Gauge Error (%)

* Results: (Figures)

Here you should draw two curves:

1- Gauge Reading **against** Absolute Gauge Error
2- Gauge Reading **against** Percentage Gauge Error