

Lab 3 Readings

1. $N_1 = 2000$ rpm

y (cm)	H_{ms} (ft)	H_{md} (ft)	F (kg.f)
17	9	20	5
13	6	32	4.2
6	3	45	3.2
0	0	60	0.5

2. $N_2 = 2500$ rpm

y (cm)	H_{ms} (ft)	H_{md} (ft)	F (kg.f)
27	13	26	8.4
18	8	52	7.9
7.5	4	72	6.5
0	0	82	2.2

Venturi data:

$C_d = 0.94$

$$Q = C_d \frac{A_{pipe} * A_{throte}}{\sqrt{A_{pipe}^2 - A_{throte}^2}} \sqrt{2 * g * h}$$

$$h = y \left[\frac{SG_u}{SG_f} - 1 \right]$$

$d_{pipe} = 10$ cm

$d_{throat} = 6.86$ cm

Q = Discharge

y = U-tube manometer reading

$SG_u = 13.6$

$SG_f = 1$

$$\eta = (O/P) / (I/P)$$

Where,

$$O/P = \gamma_{\text{water}} \times H_m \times Q$$

$$I/P = S.P. = T \times \omega$$

$$T = F \times R$$

$$\omega = 2 \pi N / 60$$

$$R \text{ (brake radius)} = 0.3048 \text{ m.}$$