

Q1. $D_1 = 250 \text{ mm} = 0.25 \text{ m}$ Inlet Diameter.

$$A_1 = \frac{\pi \times D_1^2}{4} = \frac{\pi \times 0.25^2}{4} = 0.0156 \text{ m}^2$$

$D_2 = 150 \text{ mm} = 0.15 \text{ m}$ Throat Diameter

$$A_2 = \frac{\pi \times D_2^2}{4} = \frac{\pi \times 0.15^2}{4} = 0.0176 \text{ m}^2$$

Specific gravity of liquid in manometer = 1.26

Reading of differential manometer = 0.9 m of oil

Reading of differential manometer = 0.58 m = 0.25

$$h = \left(\frac{\rho_1}{\rho_2} + 2 \right) \left(\frac{\rho_2}{\rho_1} + 2 \right)$$

$$0.25 \left(\frac{1.26}{0.9} - 1 \right) = 0.58 \text{ m of oil}$$

$$Q = C_d \times \frac{\rho_1 A_1 A_2 \sqrt{2gh}}{\sqrt{A_1^2 - A_2^2}}$$

$$= 0.98 \times 0.0156 \times 0.0176 \times \sqrt{2 \times 9.81 \times 0.1414}$$

$\frac{10^{-6} \text{ m}^3}{\text{s}} \rightarrow 0.0176$

$$= 0.14029 \text{ m}^3/\text{s}$$

$Q_2 - Q_1 = 150 \text{ mm} = 0.15 \text{ m}$

$$\left(\frac{\rho_1 - \rho_2}{\rho_2} \right) \times 0.3 = 3.53$$

$$\frac{\rho_1 - \rho_2}{\rho_2} = 3.53 + 0.3$$

$$\frac{\rho_1 - \rho_2}{\rho_2} = 3.83$$

$$\rho_1 - \rho_2 = 3.83 \rho_2$$

$$\rho_1 - \rho_2 = 3.83 \times 9.81 \times 0.9$$

$$= 33.81 \text{ kN/m}^3$$

Donat-vegen Mittern Streue
 177cm/100cm
 0,177m/1m

1) 29000g Streue = 0,29

$V_1 = 150mm = 0,15m$

$V_2 = 150mm = 0,15m$

$V_3 = 150mm = 0,15m$

$V_4 = 150mm = 0,15m$

$V_5 = 0,15m$

$(P_1 - P_2) \rightarrow$ Differenz von Pressure

$A_1 = \pi R_1^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_2 = \pi R_2^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_3 = \pi R_3^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_4 = \pi R_4^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_5 = \pi R_5^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_6 = \pi R_6^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_7 = \pi R_7^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_8 = \pi R_8^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_9 = \pi R_9^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{10} = \pi R_{10}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{11} = \pi R_{11}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{12} = \pi R_{12}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{13} = \pi R_{13}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{14} = \pi R_{14}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{15} = \pi R_{15}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{16} = \pi R_{16}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{17} = \pi R_{17}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{18} = \pi R_{18}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{19} = \pi R_{19}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{20} = \pi R_{20}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{21} = \pi R_{21}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{22} = \pi R_{22}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{23} = \pi R_{23}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{24} = \pi R_{24}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{25} = \pi R_{25}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{26} = \pi R_{26}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{27} = \pi R_{27}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{28} = \pi R_{28}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{29} = \pi R_{29}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{30} = \pi R_{30}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{31} = \pi R_{31}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{32} = \pi R_{32}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{33} = \pi R_{33}^2 = \pi \times 0,075^2 = 0,004418m^2$

$A_{34} = \pi R_{34}^2 = \pi \times 0,075^2 = 0,004418m^2$