Khushi Kandhari
D8/18

1

EXPERIMENT -

AIM: To study behaviour of flow-meter - Rota meter.

APPARATUS: Rota meter, measuring tank, sump tank, supply pump set, switch and starter, frame work mounting etc.

THEORY: A rotameter is commonly used type of industrial flowmeter that is used to measure flowrate of liquid/gas. It consists of tapered tube with with float inside. Rotameters work in simplistic way: fluid raises float when it passes through tapered tube. When there is no flow, float stays resting at bottom. Rotameters are widely used because they are easy to install and maintain and they have fairly wide measurement range, a low pressure drop and linear scales.

PROCEDURE: 1) Make sure that rotameter is in vertical position.
2) Start flow by operating valve slowly.
3) As float moves upward, stop valve adjustment and observe that float comes to dynamic equilibrium position.
4) Upward and downward movement of float depends upon rate of flow.
5) Float gives readings on calibrated scale in terms of flow rate

Sr No.	ROTAMETAR (lph) reading	lps (Calc)	lps (obs)	error
1	300	0.0833	0.086	3.13%
2	500	0.1388	0.141	1.56%
3	700	0.1944	0.186	4.516%
4	800	0.222	0.199	11.56%
5	900	0.25	0.2087	19.79%

0.003 litres → 1 hr
1 l → x hr

$$x = \frac{1}{0.002} = 309.6$$

lph = 309.6

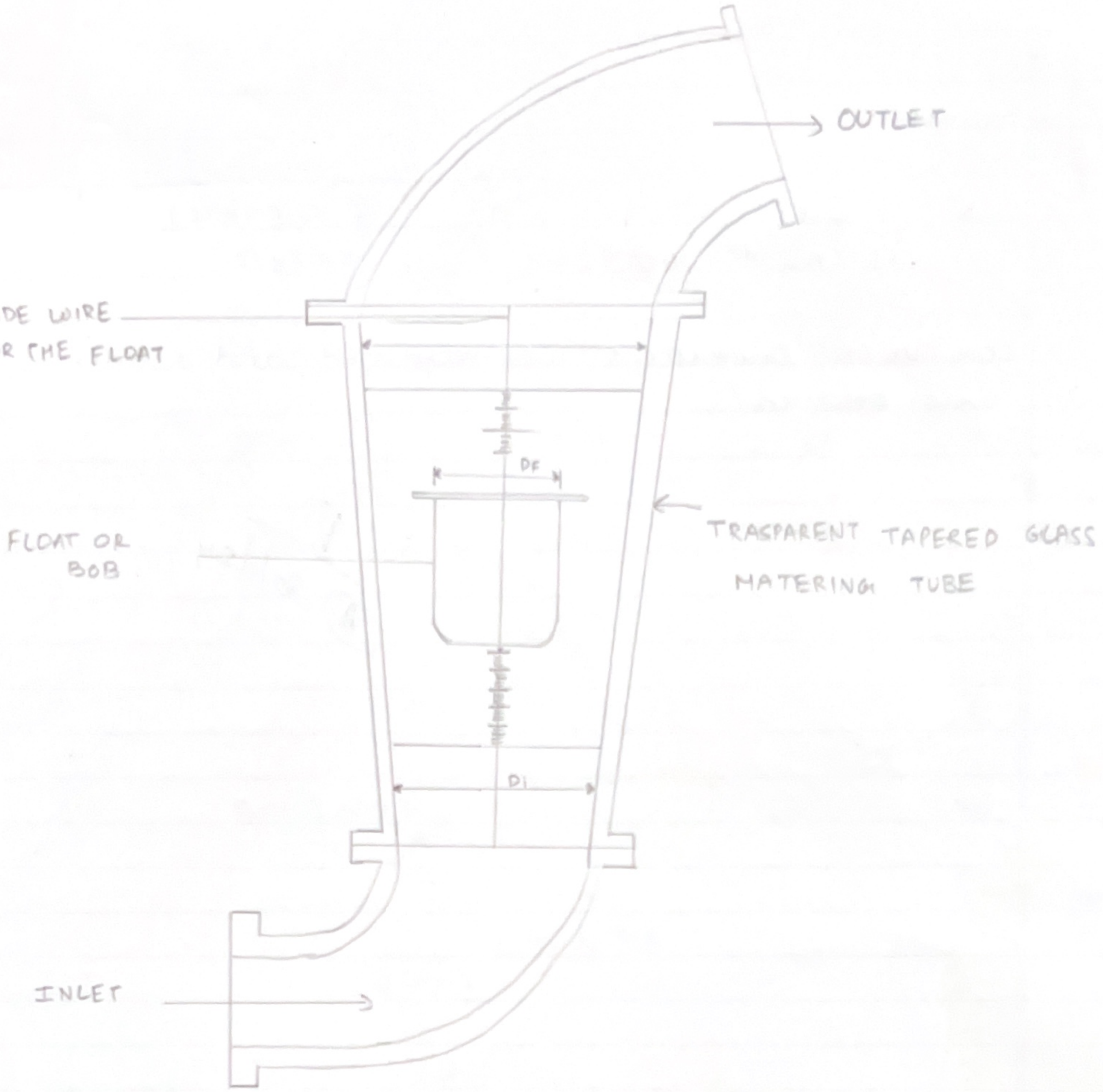
lps = 0.086 lps

Equation:

$$K = \frac{Cd}{\sqrt{1-(At-Af)^2/At^2}} \cdot \sqrt{2g \cdot \frac{Uf \cdot (ef - e/f)}{Af(e/f)}}$$

CONCLUSION: Experiment was performed and reading were observed.

30/11/24


OUTLET
GUIDE WIRE FOR THE FLOAT
Df
FLOAT OR BOB
TRASPARENT TAPERED GLASS METERING TUBE
D1
INLET

ROTAMETER