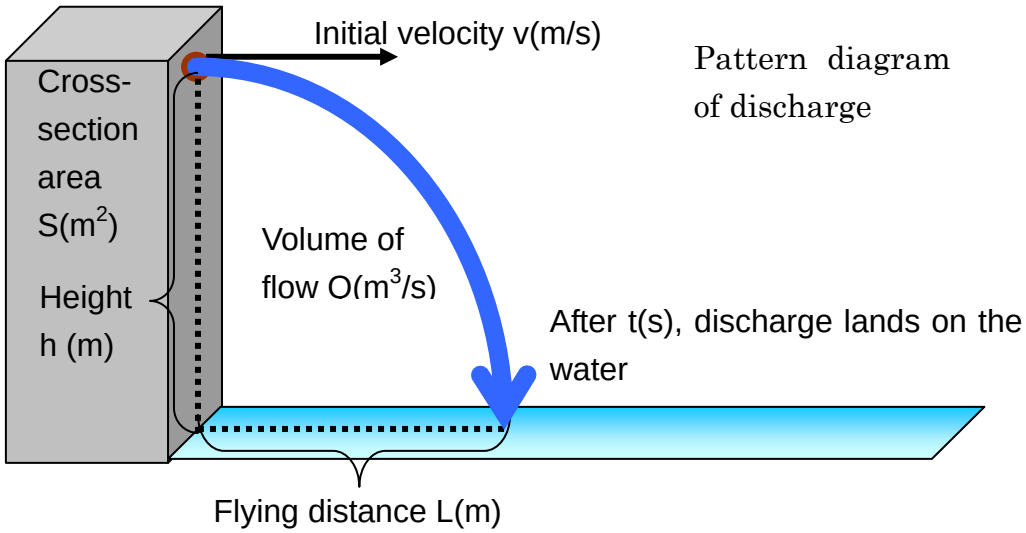
Reference 1

Evaluation method of volume of discharge



Based on the flying distance and height, assuming discharged liquid in falling motion, volume of flow is calculated as follows:

Vertical direction is free-fall motion $h = \frac{1}{2}gt^2 \quad \Leftrightarrow \quad t = \sqrt{\frac{2h}{g}}$

Horizontal direction is uniform motion $v = \frac{L}{t} = \frac{L}{\sqrt{\frac{2h}{g}}}$

Volume of flow $Q = Sv = \frac{SL}{\sqrt{\frac{2h}{g}}} \quad \cdots ①$

＜Premise＞

Cross-section area：S=Diameter 3cm = 7.07×10^{-4}(m^2)

Flying distance：L = 0.65 (m)

Height：h = 0.75 (m)

Gravity acceleration：g=9.8 (m/s^2)

By substituting premise into equation ①, volume of flow is evaluated as fallows:

$$Q = \frac{SL}{\sqrt{\frac{2h}{g}}} = \frac{7.07 \times 10^{-4} \times 0.65}{\sqrt{\frac{2 \times 0.75}{9.8}}} = 1.17 \times 10^{-3} (m^3/s) \neq 4300(\lambda/h)$$