

解: $Q = akh \sqrt{\frac{2(P_2 - P_1)gV}{P_k S}}$ [REDACTED]

1) $Q_p = akh \sqrt{\frac{2(P_{2p} - P_k)gV}{P_k S}}$ $Q_A = akh \sqrt{\frac{2(P_{2A} - P_A)gV}{P_A S}}$ $Q_1 = 30 \text{ m}^3/\text{h}$

$\frac{Q_1}{Q_A} = \sqrt{\frac{P_{2p} - P_k}{P_{2A} - P_A} \frac{P_A}{P_k}} \Rightarrow Q_A = 23.29 \text{ m}^3/\text{h}$

2) $Q_{m1} = akh \sqrt{\frac{2(P_{2m1} - P_k)gV}{P_k S}}$ $Q_{m2} = akh \sqrt{\frac{2(P_{2m2} - P_k)gV}{P_k S}}$ $Q_{m1} = 50 \text{ m}^3/\text{h}$

$\frac{Q_{m1}}{Q_{m2}} = \sqrt{\frac{P_{2m1} - P_k}{P_{2m2} - P_k}} \Rightarrow Q_{m2} = 61.68 \text{ m}^3/\text{h}$

3) $Q_2 = akh \sqrt{\frac{2(P_{22} - P_k)gV}{P_k S}}$ $Q_p = akh \sqrt{\frac{2(P_{2p} - P_A)gV}{P_A S}}$ $Q_2 = 25 \text{ m}^3/\text{h}$

$\frac{Q_2}{Q_p} = \sqrt{\frac{P_{22} - P_k}{P_{2p} - P_A} \frac{P_A}{P_k}} \Rightarrow Q_p = 24.29 \text{ m}^3/\text{h}$