

Liquid Flow Formulas

1. Valve Sizing Equations

The basic valve sizing equation for liquids is:

$$\text{GPM} = C_v \sqrt{\frac{\Delta P}{G}}$$

which when transposed can be written either as:

$$C_v = \frac{\text{GPM}}{\sqrt{\frac{\Delta P}{G}}}$$

or:

$$\Delta P = \left[\frac{\text{GPM}}{C_v} \right]^2 \times G$$

Where: GPM = Flow in Gallons Per Minute

ΔP = Pressure Drop in PSI ($P_1 - P_2$)

P_1 = Inlet Pressure (PSIA)

P_2 = Outlet Pressure (PSIA)

G = Specific Gravity of Liquid

C_v = Valve Flow Coefficient