Liquid Flow Formulas

1. Valve Sizing Equations
The basic valve sizing equation for liquids is:

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

which when transposed can be written either as:

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

or:

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

Where:
- $GPM =$ Flow in Gallons Per Minute
- $\Delta P =$ 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