

Flow Coefficient Calculations

Flow of Liquid

$$Q = C_v \sqrt{\frac{\Delta P}{\text{SpGr}}}$$

or

$$\Delta P = \frac{(Q)^2 (\text{SpGr})}{(C_v)^2}$$

Where:

- Q = Flow in US gpm
 ΔP = Pressure drop (psig)
 SpGr = Specific gravity at flowing temperature
 C_v = Valve constant

Flow of Gas

$$Q = 1360 C_v \sqrt{\frac{(\Delta P) (P_2)}{(\text{SpGr}) (T)}}$$

or

$$\Delta P = \frac{5.4 \times 10^{-7} (\text{SpGr}) (T) (Q)^2}{(C_v)^2 (P_2)}$$

Where:

- Q = Flow in SCFH
 ΔP = Pressure drop (psig)
 SpGr = Specific gravity (based on air = 1.0)
 P₂ = Outlet pressure-psia (psig + 14.7)
 T = (temp. °F + 460)
 C_v = Valve constant

