

**36.57** A 6in gate valve with flow coefficient 150 permits 500gpm of oil ( $SG = 0.88$ ) to flow through a piping system. What is the pressure drop across the valve?

- A. 2.9psi
- B. 3.3psi
- C. 9.8psi
- D. 11.1psi

Use the equation for the **Valve Flow Coefficient** for fluids other than water to account for the specific gravity of oil. Rearrange to isolate  $\Delta P$ .

$$C_v = Q \sqrt{\frac{SG}{\Delta P}}$$
$$\Delta P = \left( \frac{Q}{C_v} \right)^2 SG$$

Substitute and solve. Make sure the volume flow rate,  $Q$ , is in *gpm*, and the pressure drop will be obtained in *psi*.

$$\Delta P = \left( \frac{500}{150} \right)^2 (0.88) = 9.8psi$$

**Answer C**