**5.8-2** Compute the nominal shear strength of an M12 × 11.8(M310 × 17.6) of A572 Grade 65 steel. ($F_y = 65$ ksi(450 MPa))

FROM TABLE 1-2 (1-32) $\begin{cases} \frac{b_f}{2t_f} = 6.81 & \frac{h}{t_w} = 62.5 \\ d = 12.0 & t_w = 0.177 \text{ IN} \end{cases}$

$V_n = 0.6 F_y A_w C_{v_1}$ AISC EQN. G2-1

$$2.24\sqrt{E/F_y} = 2.24\sqrt{\frac{29{,}000}{65}} = 47.31$$

$$\frac{h}{t_w} = 62.5 > 2.24\sqrt{E/F_y}$$

$$1.10\sqrt{\frac{k_v E}{F_y}} = 1.10\sqrt{\frac{5.34(29{,}000)}{65}} = 53.69$$

$$\frac{h}{t_w} > 1.10\sqrt{\frac{k_v E}{F_y}} \quad \therefore \quad C_{v_1} = \frac{1.10\sqrt{\frac{k_v E}{F_y}}}{h/t_w} = \frac{53.69}{62.5}$$

$$= 0.8591$$

$$V_n = 0.6(65 \text{ksi})(12.0 \text{IN})(0.177 \text{IN})(0.8591)$$

$$= \underline{\underline{71.16^{K}}}$$