

$$\boxed{B/28} \quad \bar{r} = \frac{4r}{3\pi} = \frac{4(100)}{3\pi} = 42.4 \text{ mm}$$

Table D/1: $\rho_{\text{Steel}} = 7830 \text{ kg/m}^3$

$$m = \rho V = 7830 \frac{\pi (0.1)^2}{2} (0.060) = 7.38 \text{ kg}$$

$$I_{oo} = \frac{1}{2} m r^2 = \frac{1}{2} (7.38) (0.1)^2 = 0.0369 \text{ kg} \cdot \text{m}^2$$

By symmetry, $I_{xx} = I_{oo} + m r^2 = 0.0369 + 7.38 (0.1)^2$
 $= 0.1107 \text{ kg} \cdot \text{m}^2$

$$I_{x_0 x_0} = I_{GG} + m d^2 = (I_{oo} - m \bar{r}^2) + m d^2$$

$$= I_{oo} + m (d^2 - \bar{r}^2)$$

$$= 0.0369 + 7.38 [(0.060 + 0.0424)^2 - 0.0424^2]$$

$$= \underline{0.1010 \text{ kg} \cdot \text{m}^2}$$

