



YIELD STRESS

$$\sigma_{YIELD} = 275 \text{ N/mm}^2$$

$$\text{SAFE FACTOR} = 2$$

$$\sigma_{ALLOWABLE} = \frac{275}{2}$$

$$d = \sqrt{\frac{6M}{\sigma_{ALLOW} \times b}}$$

$$\sigma_{ALLOW} = 137.5 \text{ N/mm}^2$$

$$b = 40 \text{ mm}$$

$$\therefore d = \sqrt{\frac{6 \times 100 \times 111 \times 9.81}{137.5 \times 40}}$$

$$M = \frac{200 \text{ kg}}{2} \times \frac{222}{2} \times 9.81$$

$$d = \underline{\underline{10.918 \text{ mm}}}$$