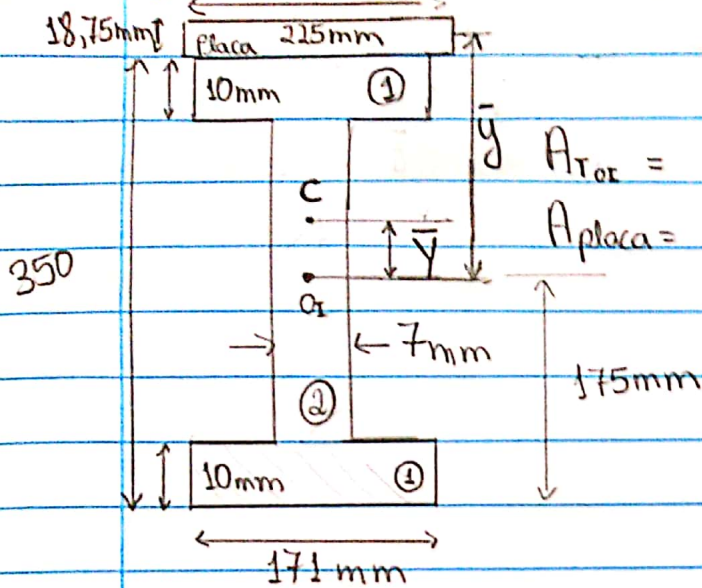


Problema Resolvido 7.4

Tabela

I 360 x 44

$$\approx 122 \times 10^6 = I_{or} ; A_{or} = 5730 \text{ mm}^2$$



$$A_{T_{or}} = 2 \cdot 10 \cdot 171 + 330 \cdot 7 = 5730 \text{ mm}^2$$

$$A_{placa} = 225 \cdot 18,75 = 4218,75 \text{ mm}^2$$

Seção	Área [mm²]	\bar{y} [mm]	$A \cdot \bar{y}$ [mm³]
Placa	4218,75	$175 + \frac{18,75}{2} = 184,375$	$777,83 \cdot 10^3$
I	5730	0	0 (simetria)
$\Sigma A = 9948,75$		$\Sigma \bar{y} A = 777,83 \cdot 10^3 = Q_x$	

$$\bar{y} \cdot \Sigma A = \Sigma \bar{y} A$$

$$\bar{y} = \frac{777,83 \cdot 10^3}{9948,75}$$

$$\Rightarrow \boxed{\bar{y} = 78,18 \text{ mm}}$$

$$\rightarrow I_T = I_{or} + I_{placa}$$

$$\bar{I}_{or} = 2I_1 + I_2$$

$$\bar{I}_{or} = 2 \left[\frac{171 \cdot 10^3}{12} + \left(\frac{350}{2} + \frac{10}{2} \right)^2 \cdot 10 \cdot 171 \right] + \frac{7 \cdot (350 - 20)^3}{12}$$

$$\bar{I}_{or} = 131,79 \cdot 10^6 \text{ mm}^4 \quad \sim \text{momento de inércia em relação a } O_1 \neq \text{da tabela}$$

$$I_{or} = \bar{I}_{or} + d^2 \cdot A = 131,79 \cdot 10^6 + (78,18)^2 \cdot 5730$$

$$I_{or} = 166,78 \cdot 10^6 \text{ mm}^4 \quad \sim \text{momento de inércia em relação a } C$$

$$I_{placa} = \frac{225 \cdot 18,75^3}{12} + (184,375 - 78,18)^2 \cdot (4218,75) = 47,7 \cdot 10^6 \text{ mm}^4$$

$$I_T = I_{or} + I_{placa} = 166,78 \cdot 10^6 + 47,7 \cdot 10^6 = 214,48 \cdot 10^6 \text{ mm}^4$$