AM1-5.1

W 150 × 13,1 kg/m A36 $L = 300\ cm$

→ CONTENÇÃO LATERAL EM X:

Da tabela A.6.9: $I_x = 2244\ cm^4$ $r_x = 6,85\ cm$

$A_g = 47,8\ cm^2$

Biroteulado: → $k = 1,0$

$\lambda_x = 1,0 \cdot 300\ cm / 6,85\ cm = 43,796 < 200$ ok!

$$\sqrt{\frac{f_y}{\pi^2 E}} = \sqrt{\frac{25\ kN/cm^2}{\pi^2\ 20000\ kN/cm^2}} = 0,011254$$

$\lambda_{0x} = 43,796 \cdot 0,011254 = 0,49288$

$\chi = 0,658^{0,49288^2} = 0,90332$

$N_{cRd} = \chi A_g f_y / \gamma_{a1} = \frac{0,90332 \cdot 47,8\ cm^2 \cdot 25\ kN/cm^2}{1,1} = 981,3\ kN$

→ SEM CONTENÇÃO LATERAL EM Y:

DA TABELA A.6.9: $I_y = 707\ cm^4$ $r_y = 3,84\ cm$

$\lambda_y = 1,0 \cdot 300\ cm / 3,84\ cm = 78,125 < 200$ ok!

$\lambda_{0y} = 78,125 \cdot 0,011254 = 0,87922$

$\chi = 0,658^{0,87922^2} = 0,72358$

$N_{cRd} = \chi A_g f_y / \gamma_{a1} = \frac{0,72358 \cdot 47,8\ cm^2 \cdot 25\ kN/cm^2}{1,1} = 786,1\ kN$