

Moment @ weld plate-frame:

Length between 2 supports groundpipe :

$$\text{Length}_{\text{frame}} := 18\text{m}$$

Length from supportpoint to front plate :

$$\text{Length}_{\text{weld.front}} := 410\text{mm}$$

Length from supportpoint to back welded plate :

$$\text{Length}_{\text{weld.back}} := 470\text{mm}$$

$$M_{x.\text{front}} := \frac{G_{\text{tot}}}{2} \cdot \left(\text{Length}_{\text{weld.front}} - \frac{\text{Length}_{\text{weld.front}}^2}{\text{Length}_{\text{frame}}} \right)$$

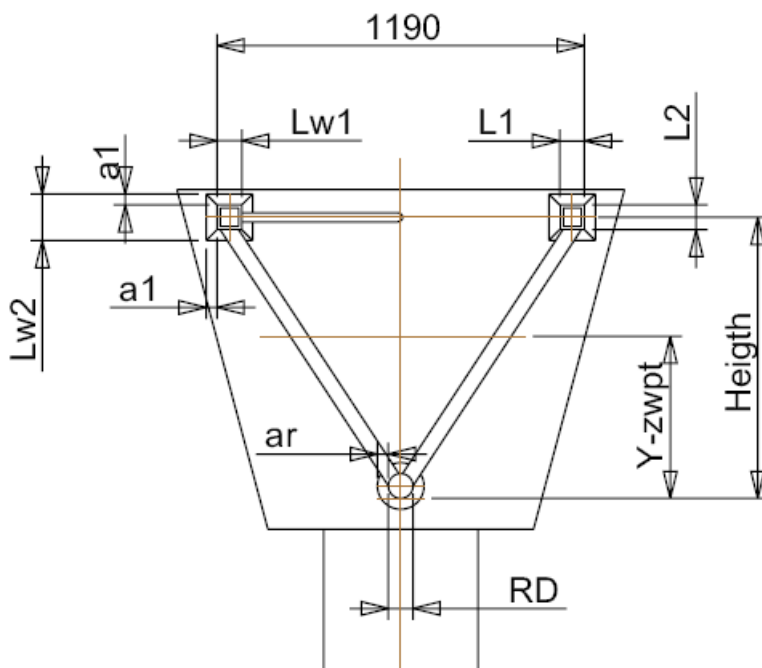
$$M_{x.\text{front}} = 19140.82 \cdot \text{Nm}$$

$$M_{x.\text{back}} := \frac{G_{\text{tot}}}{2} \cdot \left(\text{Length}_{\text{weld.back}} - \frac{\text{Length}_{\text{weld.back}}^2}{\text{Length}_{\text{frame}}} \right)$$

$$M_{x.\text{back}} = 21867.07 \cdot \text{Nm}$$

Calculation of the strength of the welds from frame-plate:

Calculation of point of gravity frame:



Input

Height of square profile :

$$L1 := 80\text{mm}$$

Width of square profile :

$$L2 := 80\text{mm}$$

Thickness of square profile :

$$t_{\text{sq}} := 10\text{mm}$$

Weld thickness of square profile :

$$a1 := 14\text{mm}$$

Diametre of round staf :

$$RD := 85\text{mm}$$

Weld thickness of round staf :

$$a_r := 14\text{mm}$$

Heigth of the square profile to centerline:

$$\text{Heigth} := 895\text{mm}$$