

Position:

Schweißnähte nach DIN 18800

Systemwerte:

Profil: IPE200

Profilart = I - Profil

Material = S235

$\alpha W = 0,95$

$f_{yk} = 240,00 \text{ N/mm}^2$

$\gamma M = 1,10 [-]$

Schweißnähte:

$a_1 = 5,0 \text{ mm}$ ,  $La_1 = 100,0 \text{ mm}$  (min. $a_1 = 2,4 \text{ mm}$ , max. $a_1 = 5,9 \text{ mm}$ )

$a_2 = 5,0 \text{ mm}$ ,  $La_2 = 35,2 \text{ mm}$  (min. $a_2 = 2,4 \text{ mm}$ , max. $a_2 = 5,9 \text{ mm}$ )

$a_3 = 3,0 \text{ mm}$ ,  $La_3 = 159,0 \text{ mm}$  (min. $a_3 = 2,0 \text{ mm}$ , max. $a_3 = 3,9 \text{ mm}$ )

Belastung:

$N_d = 68,000 \text{ kN}$  (Druckkraft = negativ)

$M_{yd} = 13,000 \text{ kNm}$

$M_{zd} = 3,000 \text{ kNm}$

$V_{zd} = 27,000 \text{ kN}$

$V_{yd} = 5,000 \text{ kN}$

Nachweise nach DIN 18800:

$A, W = 26,58 \text{ cm}^2$

$A, V, z, W = 9,54 \text{ cm}^2$

$A, V, y, W = 17,04 \text{ cm}^2$

$I_y, W = 1790,39 \text{ cm}^4$

$I_z, W = 165,25 \text{ cm}^4$

$\sigma_{v, W, Rd} = 20,73 \text{ kN/cm}^2$

**Naht 1:** max. $\sigma = 18,90 \text{ kN/cm}^2$   
 max. $\tau = 0,29 \text{ kN/cm}^2$   
 max. $\sigma_{v, W} = 18,90 \text{ kN/cm}^2$

**Naht 2:** max. $\sigma = 18,28 \text{ kN/cm}^2$   
 max. $\tau = 0,29 \text{ kN/cm}^2$   
 max. $\sigma_{v, W} = 18,28 \text{ kN/cm}^2$

**Naht 3:** max. $\sigma = 8,84 \text{ kN/cm}^2$   
 max. $\tau = 2,83 \text{ kN/cm}^2$   
 max. $\sigma_{v, W} = 9,28 \text{ kN/cm}^2$

--> maximale Ausnutzung  $\eta = 0,91 \leq 1,00$  (an Naht Nummer 1)

