

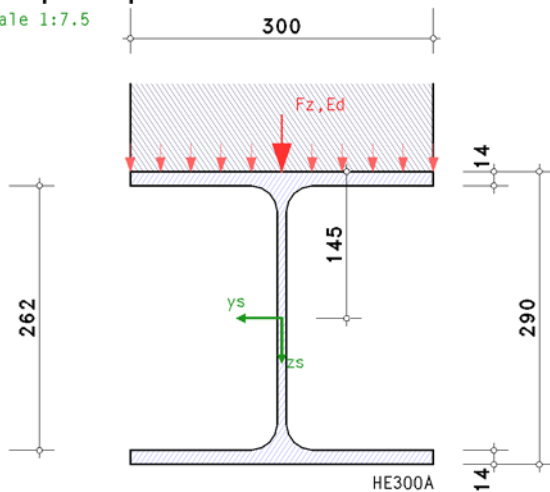
POS. 1: DAST IR 93 AUFGESCHW. PLATE

detailed problems acc. to Eurocode 3, EC 3-6 (12.10), NA: Deutschland

4H-EC3LK version: 11/2016-1f

1. input report

scale 1:7.5



steel grade

steel grade S235

cross-section

beam: section HE300A

loading

internal forces and moments at limit state of resistance (ULS):

Lk 1: $V_{z,Ed} = 505.8$ kN

transverse loading on top flange:

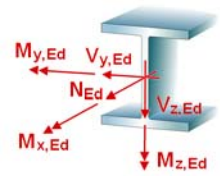
vertical single load $F_{z,Ed,ULS} = 106.80$ kN by a welded plate

plate thickness $t_p = 0.0$ mm, weld thickness $a_w = 0.0$ mm

verification at end of beam at $c = 0.0$ mm

partial safety factors for material

resistance of members in stability failure $\gamma_{M1} = 1.10$



2. verification der local loading

assumption: flange induced web buckling is excluded.

assumption: plated structures-/shear buckling is excluded.

cross-sectional properties: $A = 112.53$ cm², $z_s = 145.0$ mm, $I_y = 18263.71$ cm⁴, $y_s = -0.0$ mm, $I_z = 6309.56$ cm⁴

feed length of load due to the welded plate $s_s = t_p + 2.828 \cdot a_w = 0.0$ mm

effective loading length $l_{eff} = s_s + 2 \cdot t_f = 28.0$ mm

2.1. buckling of transverse loading (ULS)

slenderness $\lambda_F = (F_y/F_{cr})^{1/2} = 0.363$, $F_y = 117.5$ kN

reduction factor $\chi_F = 1.000$

resistance of buckling $F_{z,Rd} = f_y \cdot L_{eff} \cdot t_w / \gamma_{M1} = 106.80$ kN, $L_{eff} = \chi_F \cdot l_y = 58.8$ mm, $l_y = 58.8$ mm

verification: $F_{z,Ed}/F_{z,Rd} = 1.000 \leq 1$ **ok**

3. final result

maximum utilization: $\max U = 1.000 \leq 1$ **ok**

verification succeeded