

STEEL DESIGN

CODE: NF EN 1993-1:2005/NA:2007/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 284 sidebracing_284 **POINT:** 2
m

COORDINATE: x = 0.17 L = 1.00

LOADS:

Governing Load Case: 16 ULS /105/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.35 + 5*1.35 + 6*1.35 + 7*1.05 + 8*1.05 + 9*1.05 + 14*1.50

MATERIAL:

ACIER $f_y = 235.00$ MPa



SECTION PARAMETERS: CAE 100x7

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=7.00 cm ²	Az=7.00 cm ²	Ax=13.66 cm ²
tw=0.7 cm	Iy=128.20 cm ⁴	Iz=128.20 cm ⁴	Ix=2.21 cm ⁴
tf=0.7 cm	Wey=17.54 cm ³	Welz=17.54 cm ³	
	Weff,y=17.54 cm ³		Aeff=13.66 cm ²

Attention: Section of the 4 class! The program does not perform a full analysis of the 4 class for these section types; they are treated as the 3 class sections.

INTERNAL FORCES AND CAPACITIES:

N,Ed = 13.75 kN	My,Ed = 0.24 kN*m	
Nc,Rd = 321.01 kN	My,Ed,max = 0.43 kN*m	
Nb,Rd = 62.01 kN	My,c,Rd = 4.12 kN*m	Vz,Ed = 0.19 kN
		Vz,c,Rd = 94.97 kN
		Class of section = 4



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 6.02 m	Lam_y = 2.09
Lcr,y = 6.02 m	Xy = 0.19
Lamy = 196.53	kyy = 1.04



About z axis:

Lz = 6.02 m	Lam_z = 2.09
Lcr,z = 6.02 m	Xz = 0.19
Lamz = 196.53	kzy = 1.04

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} My,Ed/My,c,Rd &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ N,Ed/Nc,Rd + My,Ed/My,c,Rd &= 0.10 < 1.00 \quad (6.2.1(7)) \\ Vz,Ed/Vz,c,Rd &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \text{Lambda}_y &= 196.53 < \text{Lambda}_{max} = 210.00 & \text{Lambda}_z &= 196.53 < \text{Lambda}_{max} = 210.00 & \text{STABLE} \\ N,Ed/(X_{min} \cdot N_{Rk}/gM1) + k_{yy} \cdot My,Ed,max/(X_{LT} \cdot My_{Rk}/gM1) &= 0.33 < 1.00 \quad (6.3.3.(4)) \\ N,Ed/(X_{min} \cdot N_{Rk}/gM1) + k_{zy} \cdot My,Ed,max/(X_{LT} \cdot My_{Rk}/gM1) &= 0.33 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

