

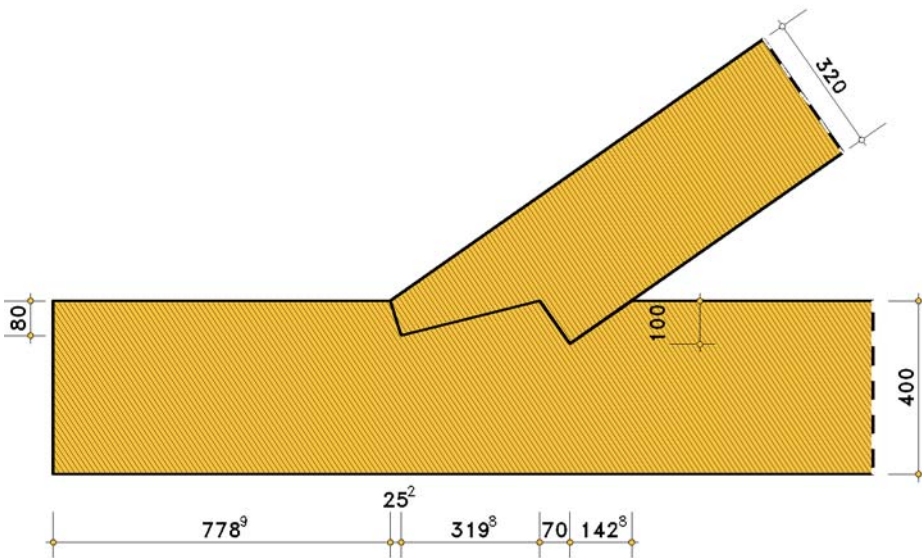
1. Input parameters

1.1. double offset acc. to DIN EN 1995-1-1/NA:2013-08, NCI NA.12.1

1.2. material and dimensions

sole plate of glue laminated timber DIN, GL32h (BS16) , $\rho_k = 430 \text{ kg/m}^3$, NKL 1
 $f_{m,k} = 32.00 \text{ N/mm}^2$, $f_{t,k} = 22.50 \text{ N/mm}^2$, $f_{c,k} = 29.00 \text{ N/mm}^2$, $f_{v,k} = 3.50 \text{ N/mm}^2$, $f_{c90,k} = 3.30 \text{ N/mm}^2$
 strut of glue laminated timber DIN, GL24h (BS11) , $\rho_k = 380 \text{ kg/m}^3$, NKL 1
 $f_{m,k} = 24.00 \text{ N/mm}^2$, $f_{t,k} = 16.50 \text{ N/mm}^2$, $f_{c,k} = 24.00 \text{ N/mm}^2$, $f_{v,k} = 3.50 \text{ N/mm}^2$, $f_{c90,k} = 2.70 \text{ N/mm}^2$
 sole plate **280/400 mm**, strut **280/320 mm**, $\gamma = 35.0^\circ$
 anchoring by bolt $\varnothing 20 \text{ mm}$

elevation scale 1:175, unit of length [mm]



1.3. internal forces and moments

Nr.	name	N _d kN	KLED	k _{mod}	γ
1	A	370.00	long-term	0.700	1.30

2. results

2.1. compression in contact surfaces acc. to DIN EN 1995-1-1/NA, NCI NA.12.1

$k_{cr} = 0.714$, $\alpha = \gamma/2 = 17.5^\circ$, $\min l_v = 804 \text{ mm}$

Nr	f _{v,d} N/mm ²	f _{c0,d} N/mm ²	f _{c90,d} N/mm ²	f _{cα1,d} N/mm ²	f _{cα2,d} N/mm ²	S _{1R,d} kN	S _{2R,d} kN	l _{v1} mm	l _{v2} mm	u _{1v} -	USE _{E,d1} -	u -
1	1.88	15.62	1.78	9.24	6.21	227.58	212.17	495	804	1.005	0.841	1.005

$U_{max} = 1.005 > 1 \Rightarrow$ **not ok. !!**

2.2. sole plate bending and normal force

$b_n = 259 \text{ mm}$, $h_n = 300 \text{ mm} \Rightarrow A_n = 77700 \text{ mm}^2$, $W_n = 3885000 \text{ mm}^3$, $e_z = 50 \text{ mm}$

Nr	left edge									right edge				u -
	f _{m,d} N/mm ²	f _{t,d} N/mm ²	f _{c,d} N/mm ²	N _d kN	σ _{Nd} N/mm ²	M _d kNm	σ _{M,d} N/mm ²	u _σ -	N _d kN	σ _{Nd} N/mm ²	M _d kNm	σ _{M,d} N/mm ²	u _σ -	
1	17.23	12.12	15.62	0.000	0.000	0.000	0.000	0.000	303.09	3.901	-15.15	-3.901	0.548	0.548

$U_{max} = 0.548 \leq 1 \Rightarrow$ **ok.**

3. Summary

total utilization all verifications $U_{max,Ges} = 1.005 \leq 1 \Rightarrow$ **ok.**