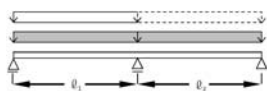


Structural analysis

TWO-SPAN BEAM - DEFORMATION

04/2012



Two-span beam_Deformation

In accordance with approval Z 9.1-559
DIN 1052 (2008) and/or EN 1995-1-1 (2006)

Dead weight gk*)	Imposed load nk	Span of single-span beam								
		3,00 m	3,50 m	4,00 m	4,50 m	5,00 m	5,50 m	6,00 m	6,50 m	7,00 m
1,00	1,00		80 L3s	80 L3s	80 L3s	90 L3s	120 L3s	120 L3s	140 L5s	140 L5s
	2,00	60 L3s			90 L3s	100 L3s	120 L3s	140 L5s	160 L5s - 2	160 L5s - 2
	2,80	80 L3s	80 L3s	90 L3s	100 L3s					
	3,50					120 L3s	140 L5s	160 L5s - 2	180 L5s	200 L5s
	4,00	80 L3s	90 L3s	100 L3s	120 L3s					
	5,00		100 L3s	120 L3s		140 L5s	160 L5s - 2	180 L5s	200 L5s	220 L7s - 2
1,50	1,00	60 L3s		80 L3s	90 L3s	100 L3s	120 L3s	140 L5s	160 L5s - 2	180 L5s
	2,00		80 L3s	90 L3s	100 L3s					
	2,80			90 L3s		120 L3s	140 L5s	160 L5s - 2	180 L5s	200 L5s
	3,50	80 L3s		100 L3s	120 L3s					
	4,00		90 L3s							
	5,00		100 L3s	120 L3s		140 L5s	160 L5s - 2	180 L5s	200 L5s	220 L7s - 2
2,00	1,00			90 L3s	100 L3s		120 L3s	140 L5s	160 L5s - 2	180 L5s
	2,00		80 L3s	90 L3s						
	2,80	80 L3s	80 L3s	100 L3s	120 L3s					
	3,50					120 L3s	140 L5s	160 L5s - 2	180 L5s	200 L5s
	4,00		90 L3s							
	5,00		100 L3s	120 L3s		140 L5s	160 L5s - 2	180 L5s	200 L5s	220 L7s - 2
2,50	1,00		80 L3s	90 L3s		120 L3s	140 L5s	160 L5s - 2	180 L5s	200 L5s
	2,00		80 L3s							
	2,80	80 L3s		100 L3s	120 L3s					
	3,50		90 L3s							
	4,00			120 L3s		140 L5s	160 L5s - 2	180 L5s	200 L5s	220 L7s - 2
	5,00	80 L3s	100 L3s							
3,00	1,00		80 L3s	100 L3s		120 L3s	140 L5s	160 L5s - 2	180 L5s	200 L5s
	2,00	80 L3s								
	2,80		90 L3s		120 L3s					
	3,50			120 L3s		140 L5s	160 L5s - 2	180 L5s	200 L5s	220 L7s - 2
	4,00	80 L3s								
	5,00		100 L3s							

* The CLT self-weight is already taken into account in the table at $p = 500 \text{ kg/m}^3$!

Service class 1, imposed load category A ($\psi_0 = 0.7$; $\psi_1 = 0.5$; $\psi_2 = 0.3$)

Load-bearing capacity:

- Verification of bending stresses
- Verification of shearing stresses

$k_{mod} = 0.8$

Serviceability:

- Quasi-constant design situation
 $zul w_{fin} = 250$
- Infrequent design situation:
 $zul w_{q,inst} = 300$
 $zul w_{fin - w_{g,inst}} = 200$

$k_{def} = 0.6$

Fire resistance

HFA 2011
 $v_1 = 0.65 \text{ mm/min}$

R0
R30
R60
R90

The analysis was carried out using the imposed load on one field. In the event of imposed loads on both fields, the required ceiling thickness may be reduced.

This table specifies the required thicknesses for the normal design situation (R0). The colour shading represents the fire resistance time which is also attained with this thickness. If a higher fire resistance time is required, a separate analysis must be carried out.

This table is only for preliminary estimate purposes and is not a substitute for a structural analysis.