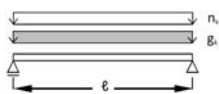


Structural analysis

SINGLE-SPAN BEAM - DEFORMATION

04/2012



Single-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	90 L3s		120 L3s	140 L5s		160 L5s – 2	180 L5s
	2,00	80 L3s	90 L3s	100 L3s	120 L3s	120 L3s	140 L5s		160 L5s – 2	200 L5s
	2,80									
	3,50		90 L3s		120 L3s	140 L5s			180 L5s	
	4,00	80 L3s	100 L3s	120 L3s			160 L5s – 2			220 L7s – 2
	5,00	90 L3s	120 L3s	120 L3s	140 L5s	160 L5s – 2		200 L5s	200 L5s	
1,50	1,00	80 L3s	90 L3s	100 L3s	120 L3s	140 L5s	140 L5s	160 L5s – 2	180 L5s	200 L5s
	2,00									
	2,80	80 L3s		120 L3s	120 L3s	140 L5s		160 L5s – 2	180 L5s	200 L5s
	3,50		100 L3s							220 L7s – 2
	4,00	90 L3s		120 L3s	140 L5s	160 L5s – 2				
	5,00	90 L3s	120 L3s	120 L3s			200 L5s	220 L7s – 2		
2,00	1,00	80 L3s		120 L3s	120 L3s	140 L5s		160 L5s – 2	180 L5s	200 L5s
	2,00		100 L3s							
	2,80	90 L3s			140 L5s		160 L5s – 2			220 L7s – 2
	3,50									
	4,00	90 L3s	120 L3s	120 L3s		160 L5s – 2	180 L5s	200 L5s	220 L7s – 2	
	5,00									
2,50	1,00	90 L3s	100 L3s	120 L3s			160 L5s – 2	180 L5s		220 L7s – 2
	2,00									
	2,80		120 L3s	120 L3s	140 L5s					
	3,50	90 L3s				160 L5s – 2	180 L5s	200 L5s	220 L7s – 2	
	4,00			140 L5s						240 L7s – 2
	5,00	100 L3s	120 L3s		160 L5s – 2		200 L5s	220 L7s – 2		
3,00	1,00	90 L3s		120 L3s	140 L5s			200 L5s		220 L7s – 2
	2,00	90 L3s	120 L3s				180 L5s			
	2,80					160 L5s – 2			220 L7s – 2	240 L7s – 2
	3,50	100 L3s		140 L5s	160 L5s – 2		200 L5s	220 L7s – 2		
	4,00		120 L3s							
	5,00				180 L5s					

* 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

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.