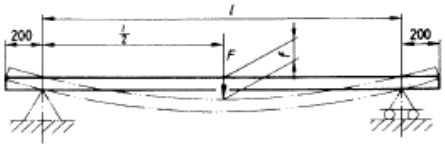
Verification of the dimensions of a fixed vertical ladder:

The dimensions of the ladder uprights must comply with the current NF E 85-016 standard. This refers to NF EN 131-2 for checking the maximum deflection, as follows:

A load F of 750 N is applied vertically to the center of the ladder placed horizontally between two supports.

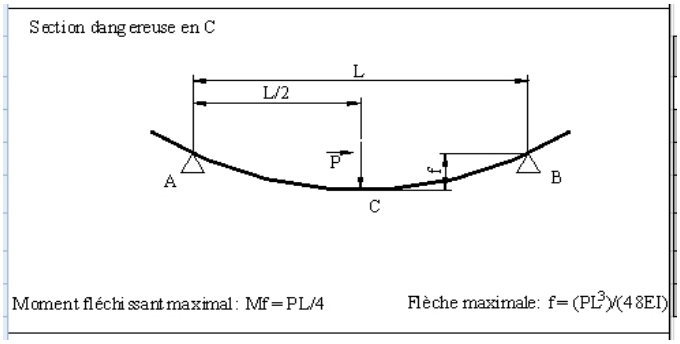


Under this load, the maximum permissible deflection fmax depending on the distance l between the supports must be: (for ladders between 5 and 12 m in length):

$$f_{max} = 0{,}043 \times l - 90 \text{ mm}$$

with a maximum limit of fmax= 50 mm.

Deflection calculation for a ladder on two supports with 115x25mm uprights:



with the corresponding inertia value:

1 x 115x25mm profile =	1131100	mm⁴

Title	Correspondence	Unit	value	
E	Young's modulus of the material in question	Pa	7000	
I	inertia of the two ladder uprights	mm⁴	2,262,200	
P	Point load	daN	75	
L	Beam length	mm	7900	
f	Maximum permissible deflection	mm	249.70	with max. 50 mm
a	coefficient depending on supports	-	0.013	

deflection calculated in mm
48.65

The calculated deflection is less than the maximum permissible deflection fmax.
The distance between ladder supports can therefore be a maximum of 7900 mm.