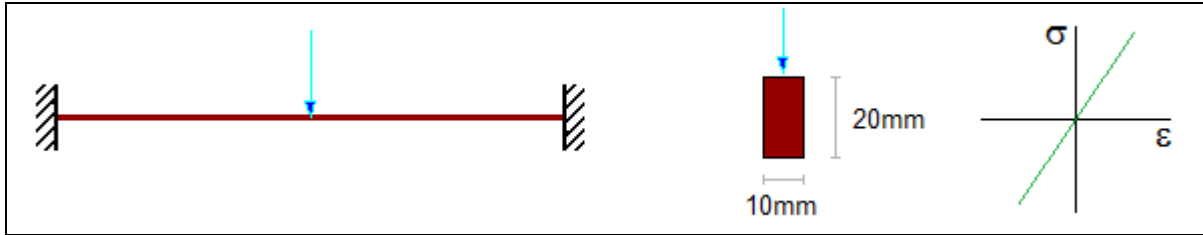


CURAN: BEAMS (HERMITIAN)	TEST 001	rev.1 21/10/13	version 10.70
VALIDATION, CROSS CHECKS, RELIABILITY, BENCHMARK	Tested by: Marco Croci - Checked by: Paolo Rugarli		



MODEL		
MODEL NAME	OUTPUT FILE	ANALYSIS TYPE
curanBE_001.WSR	curanBE_001.CS1.EEN	nonlinear static (Curan)

DATA			
L [mm]	P [N]	E [N/mm ²]	I [mm ⁴]
1000	2000	210000	6.667E+03

THEORETICAL COMPUTATION
Maximum bending moment and midspan displacement are computed as follows:
$M_{\max} = \frac{PL}{8} \qquad \delta = \frac{PL^3}{192EI}$

CROSS-CHECK

Value	<u>T</u> heory	<u>S</u> argon	% difference (S-T)/T*100
M _{max} [Nmm]	2.500E+05	2.500E+05	0.0
δ [mm]	7.440E+00	7.455E+00	0.2

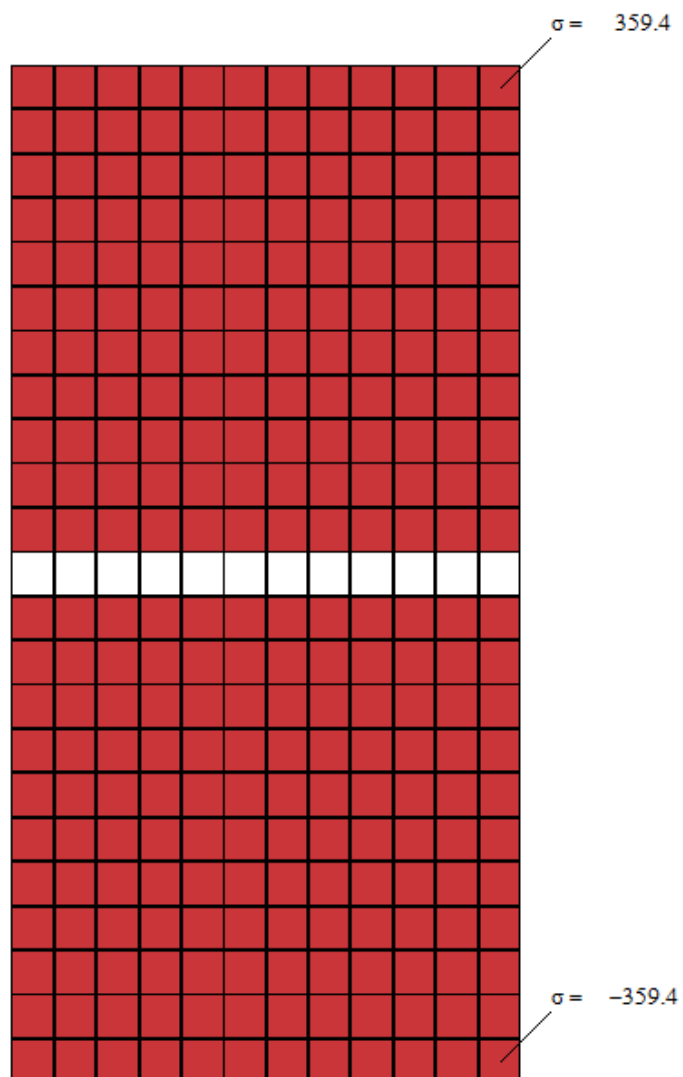
NOTES

- Solver was forced to work using fiber model even if material is linear elastic, to test this condition as well.
- force is parallel to cross-section long side (strong axis bending).
- shear area: not considered.
- Analysis parameters: Lobatto's points: 5. Fibers number: 250
- Beam elements number: 2

NONLINEAR FIBER MODEL ANALYSIS RESULTS - NORMAL STRESS

Beam #1 Lobatto's section #1 (csi = -1.000) Lcase = 1 / 1

Sigma, max= 359.4 N/mm²; Sigma, min= -359.4 N/mm²;



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