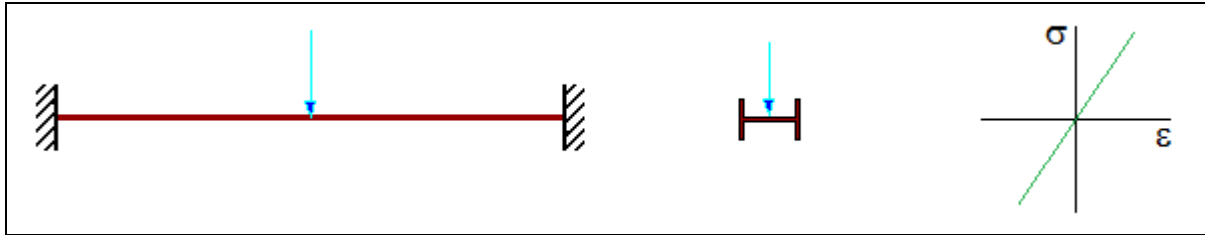


CURAN: BEAMS (HERMITIAN)	TEST 008	rev.1 21/10/13	version 10.70
VALIDATION, CROSS CHECKS, RELIABILITY, BENCHMARK	Tested by: Marco Croci - Checked by: Paolo Rugarli		



MODEL		
MODEL NAME	OUTPUT FILE	ANALYSIS TYPE
curanBE_008.WSR	curanBE_008.CS1.EEN	nonlinear static (Curan)

DATA			
L [mm]	P [N]	E [N/mm ²]	I [mm ⁴]
5000	500000	210000	1.336E+07

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]	3.125E+08	3.125E+08	0.0
δ [mm]	1.161E+02	1.162E+02	0.1

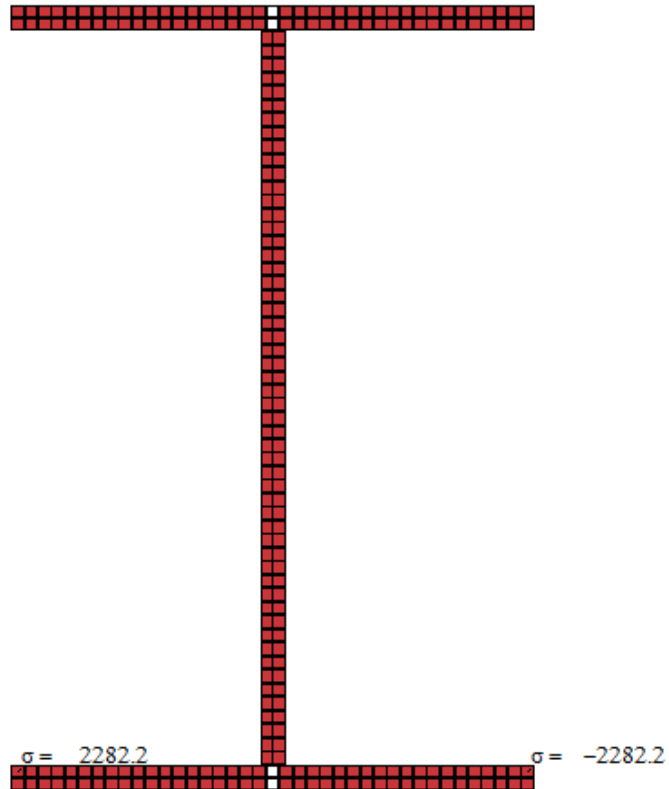
NOTES

- Solver was forced to work using fiber model even if material is linear elastic, to test this condition as well.
- force is parallel to flanges (weak 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= 2282.2 N/mm²; Sigma, min= -2282.2 N/mm²;



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