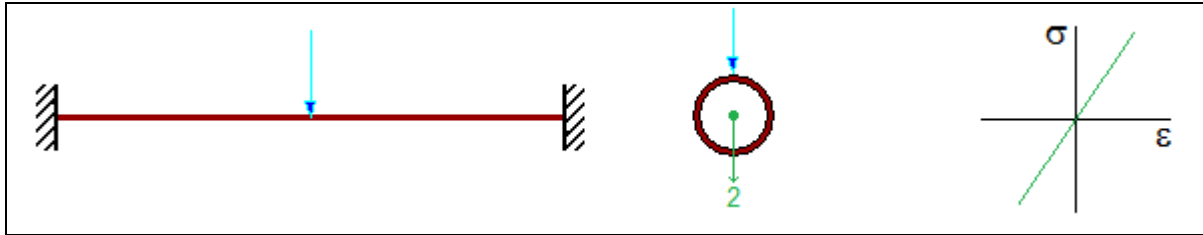


<b>CURAN: BEAMS (HERMITIAN)</b>	TEST 016	rev.1 21/10/13	version 10.70
VALIDATION, CROSS CHECKS, RELIABILITY, BENCHMARK	Tested by: Marco Croci - Checked by: Paolo Rugarli		



MODEL		
MODEL NAME	OUTPUT FILE	ANALYSIS TYPE
curanBE_016.WSR	curanBE_016.CS1.EEN	nonlinear static (Curan)

DATA			
L [mm]	P [N]	E [N/mm <sup>2</sup> ]	I [mm <sup>4</sup> ]
1000	3000	210000	6.836E+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 <sub>max</sub> [Nmm]	3.750E+05	3.750E+05	0.0
δ [mm]	1.088E+01	1.090E+01	0.1

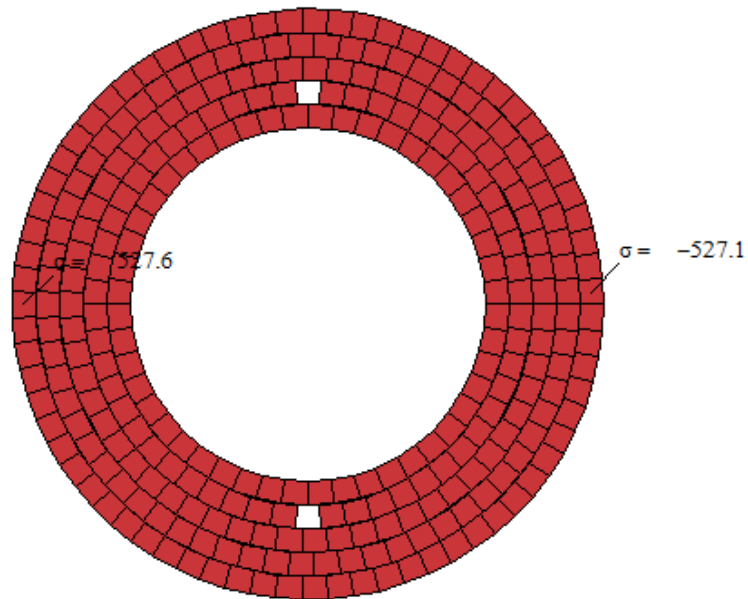
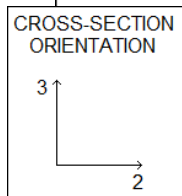
NOTES

- Solver was forced to work using fiber model even if material is linear elastic, to test this condition as well.
- force is parallel to cross-section axis 2.
- 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= 527.6 N/mm<sup>2</sup>; Sigma, min= -527.1 N/mm<sup>2</sup>;



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