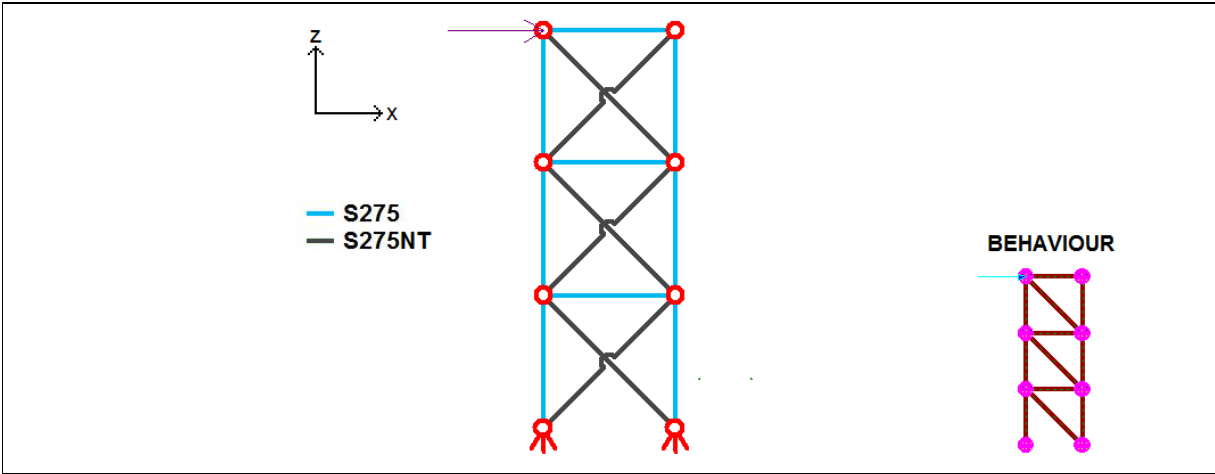


Validation of Sargon Nonlinear solver (CURAN, version 9.60)

TEST TR018

VALIDATION, RELIABILITY, BENCHMARK

Marco Croci Rev.2-06/12/2010



Test description

Constitutive law of trusses material: linear elastic; diagonal trusses are no tension.

In this case, only compressed diagonals work. Solution should coincide with a linear elastic analysis of a model were there are not diagonals in tension.

Test model: **curanTR_018.WSR**

Material properties

Name	ν	E
S275 (complete)	0,3	210000N/mm ²
Name	ν	E
S275NT (no tension)	0,3	210000N/mm ²

Cross-section: HEA200

Force (x direction)

Load case 1	F = +500000N
Load case 2	F = +20000N
Load case 3	F = +40000N

Load path: not active

CHECK

Load case	Value (*)	Unit	CURAN	THEORETICAL	% diff.
1	Truss #2 axial force	N	5,000E+05	5,000E+05	0,00
2	Truss #14 axial force	N	-2,828E+04	-2,828E+04	0,00
3	Truss #12 axial force	N	0,000E+00	(0,000E+00)	0,00
1	Node #13 displacement (x)	mm	2,608E+01	2,608E+01	0,00

(*) Elements number is the one of test model; elements in the same position in target model may have a different number, since total elements number is different.

$$\% \text{ difference} = (\text{CURAN} - \text{THEORETICAL}) / \text{THEORETICAL} * 100$$

Precision of limit multiplier for the analysis: 0.005