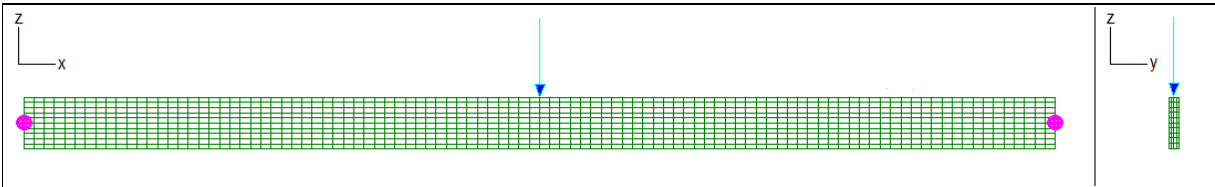


Validation of Sargon Nonlinear solver (CURAN, version 9.70)
TEST SO029 VALIDATION, CROSS CHECKS, RELIABILITY, BENCHMARK Marco Croci Rev.1-25/03/2011

Test description

 Constitutive law of solids material: elastic-perfectly plastic.
 When limit load is exceeded there is a collapse.

 Test model: **curansO_029.WSR**
Material properties

Name	ν	f_y	E
S235PP	0,3	235N/mm ²	210000N/mm ²

Beam			Constraints	Load (z direction)	
LENGTH L	HEIGHT h	THICKNESS b	LEFT / RIGHT	APPLICATION POINT	FORCE F
10000mm	500mm	100mm	Simple support	Middle point	-1200000N

Model data

Solid elements	Type	d.o.f.
4000 (100x10x4)	BRICK8WI	16635

CROSS CHECK

 Theoretical limit load is $F_{lim} = bh^2 * f_y / L = 587500N$. Load factor is $F_{lim} / F = 0,4896$

Load case	Value	Unit	CURAN	TARGET	KIND	% diff.
1	Load factor	/	4,925E-01	4,896E-01	theoretical	0,60

% difference = (CURAN - TARGET) / TARGET * 100

Precision of limit multiplier for the analysis: 0.01

BRICK8WI: isoparametric element with Wilson-Ibrahimbegovic modification