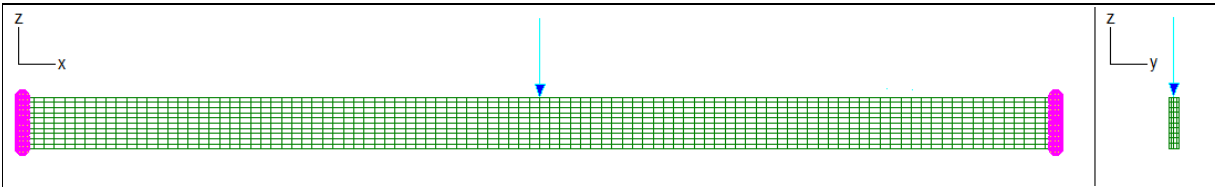


Validation of Sargon Nonlinear solver (CURAN, version 9.70)
TEST SO027 VALIDATION, CROSS CHECKS, RELIABILITY, BENCHMARK Marco Croci Rev.1-25/03/2011

Test description

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

 Test model: **curansO_027.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	Fixed	Fixed	Middle point	-1600000N

Model data

Solid elements	Type	d.o.f.
4000 (100x10x4)	BRICK8WI	16335

CROSS CHECK

 Theoretical limit load is $F_{lim}=2*bh^2*f_y/L=1175000N$. Load factor is $F_{lim}/F=0,7344$

Load case	Value	Unit	CURAN	TARGET	KIND	% diff.
1	Load factor	/	7,430E-01	7,344E-01	theoretical	1,17

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

Precision of limit multiplier for the analysis: 0.01

BRICK8WI: isoparametric element with Wilson-Ibrahimbegovic modification