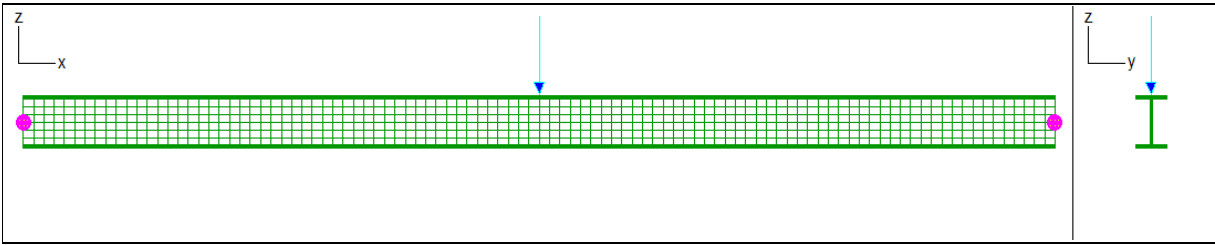


Validation of Sargon Nonlinear solver (CURAN, version 9.70)			
TEST SO024	VALIDATION, CROSS CHECKS, RELIABILITY, BENCHMARK	Marco Croci	Rev.2-11/04/2011

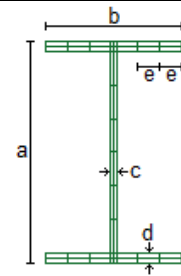


Test description	
Constitutive law of solids material: linear elastic. Solution should coincide with a linear elastic analysis solution.	
Cross-check solver: CLEVER (Sargon)	
Test model: curanSO_024.WSR	Target model: C024SO_CLEVER.WSR

Material properties		
Name	ν	E
S235LE	0,3	210000N/mm ²

Model data

Beam		Constraints	Load (z direction)	
LENGTH	SHAPE SIZES	LEFT / RIGHT	APPLICATION P.	FORCE
10000mm	See image	Simple support	Middle point	-100000N
a	b	c	d	e
500mm	300mm	14,5mm	28mm	50mm
Solid elements		Type	d.o.f.	
4400		BRICK8WI	20889	



CROSS CHECK

Load case	Value	Unit	CURAN	CLEVER	KIND	% diff.
1	Node 1843 displacement (z)	mm	-9,957E+00	-9,943E+00	theoretical	0,14
1	σ_y element 2952, node 4052	N/mm ²	5,582E+01	5,579E+01	cross-check	0,05
1	Node 2339 reaction (z)	N	2,447E+04	2,447E+04	cross-check	0,00

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

Precision of limit multiplier for the analysis: 0.005
BRICK8WI: isoparametric element with Wilson-Ibrahimbegovic modification