SSNV175 - Test of the method of delocalization per regularization of strain GRAD_EPSI on a variable bar 3D of section in tension with constitutive law ENDO_ORTH_BETON

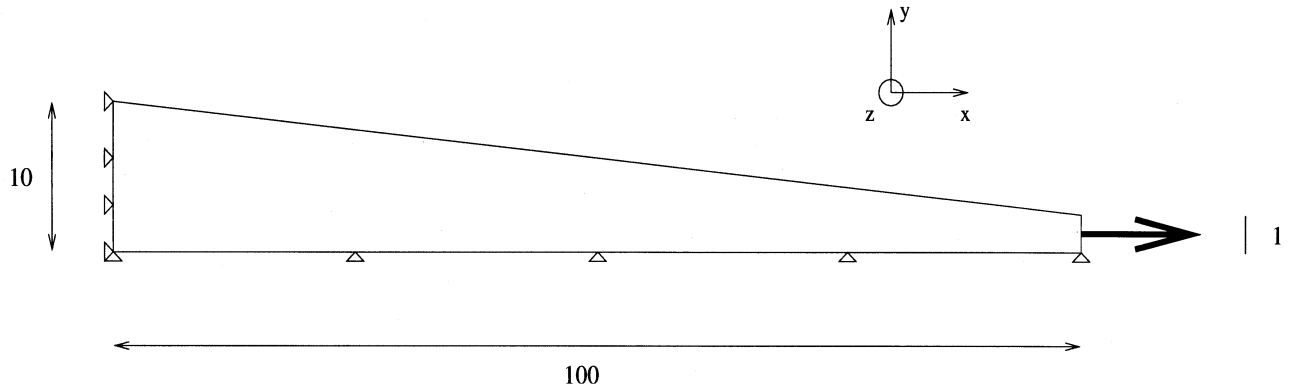
Summarized:

One presents a test of uniaxial tension on a variable bar of section with constitutive law ENDO_ORTH_BETON, in the case of the model not room per regularization of the strain.

1 Problem of reference

1.1 Geometry and boundary conditions

One considers a bar with variable section length $100\,m$, thickness $1\,m$, greater section $10\,m$ and smaller section $1\,m$.



Appear 1.1-a: Geometry and boundary conditions of the uniaxial tests

1.2 Properties of the materials

Behavior elastic:

$$E=32000\ \ MPa\ \ ;\nu=0.2$$

Length characteristic of the delocalization: $\sqrt{3}\ m$

2 Reference solution

This test is a test of non regression.

3 Modelization A

3.1 Parameters of the model/Characteristic of material

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ENDO_ORTH_BETON:    ALPHA = 0.87,
                    K0 = 3.e-4,
                    K1 = 10.5,
                    K2 = 6.e-4,
                    ECROB=1.e-3,
                    ECROD=0.06
```

3.2 Characteristic of the modelization

Modelization 3D_GRAD_EPSI

Element MGCA_TETRA10

3.3 Characteristic of the mesh

Many nodes:	507
Number of meshes and types:	54 TRIA6 174 TETRA10

3.4 Functionalities tested

constitutive law ENDO_FRAGILE
Type of control: PRED_ELAS

3.5 Results of the modelization A

Urgent	Name of the field	Component	Place	*Aster*
51	DEPL	*DX*	*N2*	2.47389E-03
51	VARI_ELGA	*V1*	*M169* , point 2	6.73271E-01

4 Summary of the results

This benchmark makes it possible to ensure the non regression one of nonlocal version 3D_GRAD_EPSI of constitutive law ENDO_ORTH_BETON.