

DISTR01 – Parametric example of study

Summary:

This test is a parametric example of study in support with the note [U2.08.07] – Distribution of parametric calculations.

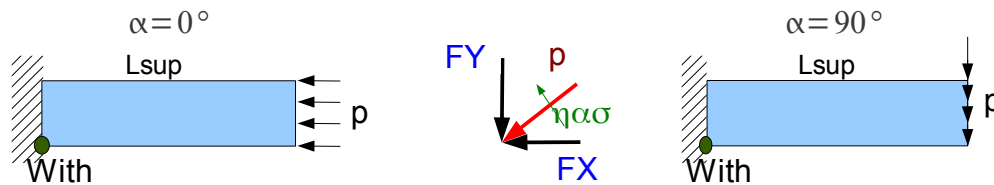
The boundary conditions, the values of materials and the loadings do not have any physical meaning.

1 Problem of reference

1.1 Geometry

A plate height is considered 5 cm and length 1 m .

In the case of parametric study, one will vary the angle of the loading applied of 0° with 90° .



1.2 Properties of material

The material is elastic isotropic whose properties are:

- $E = 210\,000\text{ MPa}$
- $\nu = 0.3$

1.3 Boundary conditions and loadings

The degrees of freedom are blocked D_X and D_Y with embedding.

Pressure p applied at the end is worth 1 MPa .

1.4 Parametric study

The interest of this test is to be used as example for the distribution of parametric calculations. One will refer to the note [U2.08.07] for more details and launching of this test as a parametric study.

During the launching of the CAS-test, all the data files are not used.

Their utility here is specified:

- `distr01a.comm`: command file of the nominal study which will be declined for each set of parameters.
- `distr01a.com1`: additional command file testing the value of reference in the case $\alpha = 0^\circ$.
- `distr01a.med`: grid of modeling A.
- `distr01a.50` and `distr01a.51`: example of definition of the sets of parameters.
- `distr01a.11`: example of postprocessing where the results of the various calculation cases are combined to produce a curve or a single table.

The last three files are not used during the launching of the standard CAS-test.

2 Reference solution

2.1 Method of calculating

The standard carrying out of the test is made with $\alpha = 0^\circ$, in pure compression.
The solution is thus commonplace: the equivalent constraint of Von Mises is equal to p .

2.2 Sizes and results of reference

One tests the value of the constraint of Von Mises on average on the higher line of the plate. The value is slightly parasitized by the constraints induced with embedding.

3 Modeling A

3.1 Characteristics of modeling

A modeling is used C_PLAN.

3.2 Characteristics of the grid

The grid contains 250 elements of the type QUAD4.

3.3 Sizes tested and results

One tests the median value of the constraint of Von Mises on the higher line of the plate (Lsup).

Identification	Type of reference	Value of reference	Tolerance
Lsup	'ANALYTICAL'	1 MPa	0.1%

4 Summary of the results

The test is commonplace, the value obtained is simply parasitized by the constraints induced with embedding.