Problem info

Problem type: Stress Analysis
Geometry model class: Plane-Parallel , Plane Strain
Problem database file names:

- Problem: *sm_stress.pbm*
- Geometry: *Sm_stress.mod*
- Material Data: *Sm_stress.dsa*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

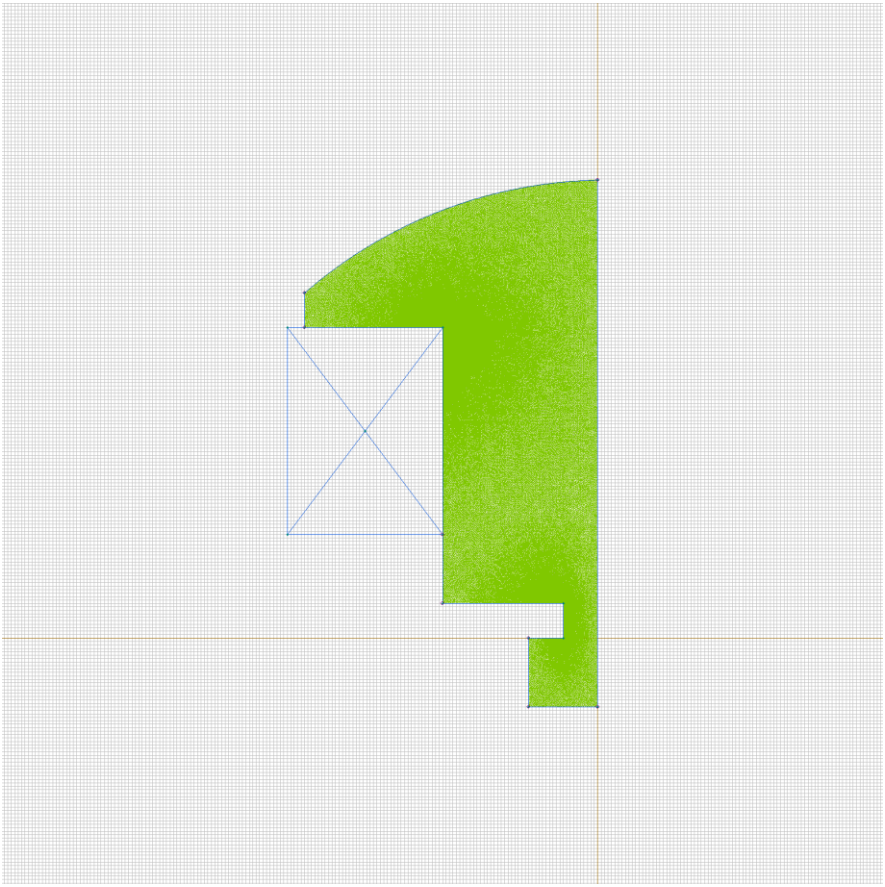


Table 1. Geometry model statistics

	With Label	Total
Blocks	1	5
Edges	3	18
Vertices	1	14

Number of nodes: 92901.

Labelled objects

There are following labelled objects in the geometry model (Material Data file could contain more labels, but only those labels that assigned to geometric objects are listed)

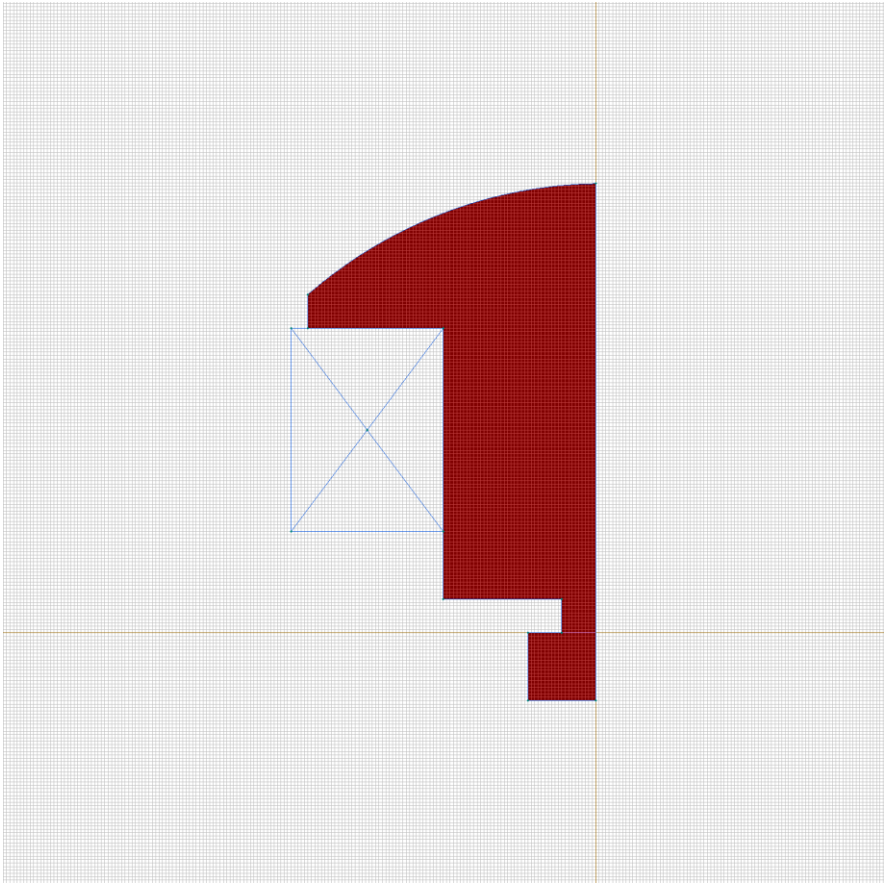
Blocks:	Edges:	Vertices:
• steel •	• symmetry • S • fixed •	• y_average •

Detailed information about each label is listed below.

Labelled objects: block "steel"

There are (1) objects with this label

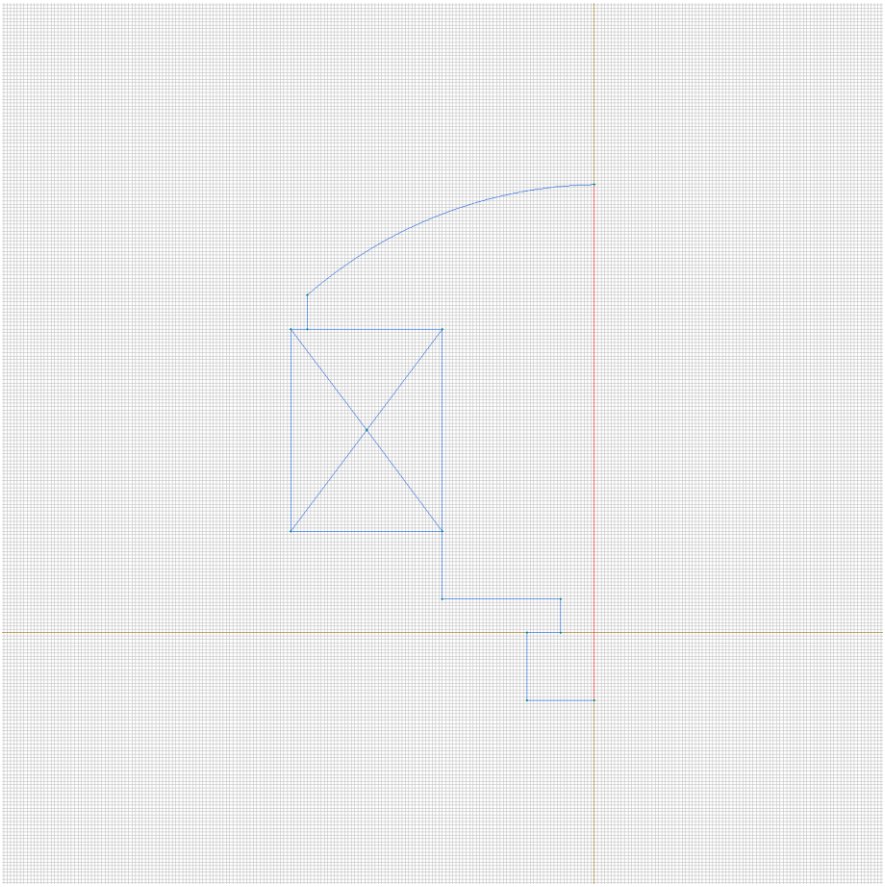
Young's moduli: Ex=207000000000 [N/m2], Ey=207000000000 [N/m2], Ez=207000000000 [N/m2]
Poisson's ratios: v_yx=0.3, v_zx=0.3, v_zy=0.3
Shear modulus: G_xy=79620000000 [N/m2]
Body force: f_x=7800 * (50*2*pi)^2 * r [N/m3], f_y=0 [N/m3]
Allowable tension: sigma_x=0 [N/m2], sigma_y=0 [N/m2]
Allowable compression: sigma_x=0 [N/m2], sigma_y=0 [N/m2]
Allowable shear: tau_xy(+)=0 [N/m2], tau_xy(-)=0 [N/m2]



Labelled objects: edge "symmetry"

There are (1) objects with this label

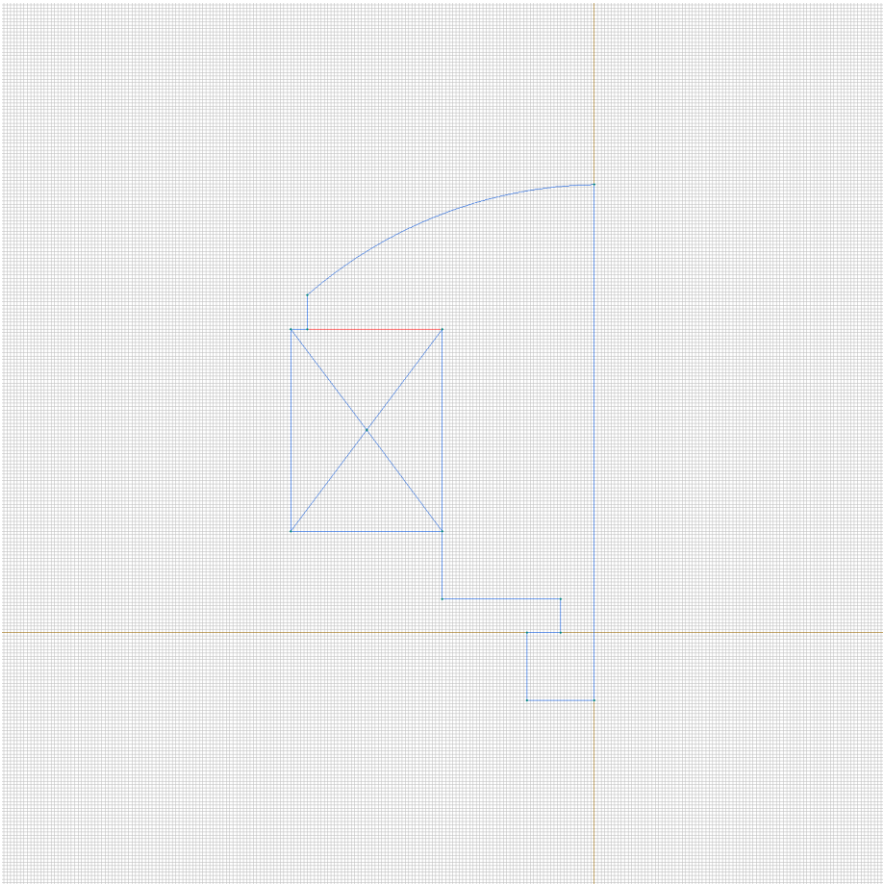
Prescribed displacement: d_x = 0 + 0*x + 0*y [m]
Surface force: f_y=0 [N/m2]



Labelled objects: edge "S"

There are (1) objects with this label

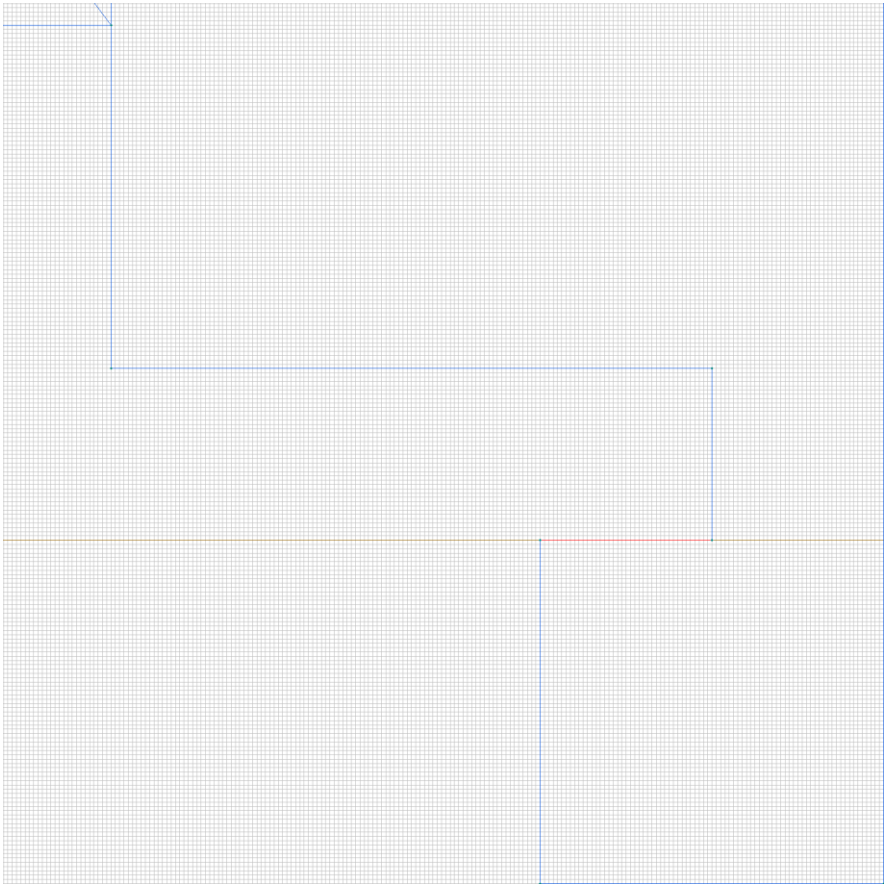
Surface force: f_x=0 [N/m2]
Surface force: f_y=600*(50*2*pi)^2 * 0.12 / 2 / (0.08*1) [N/m2]



Labelled objects: edge "fixed"

There are (1) objects with this label

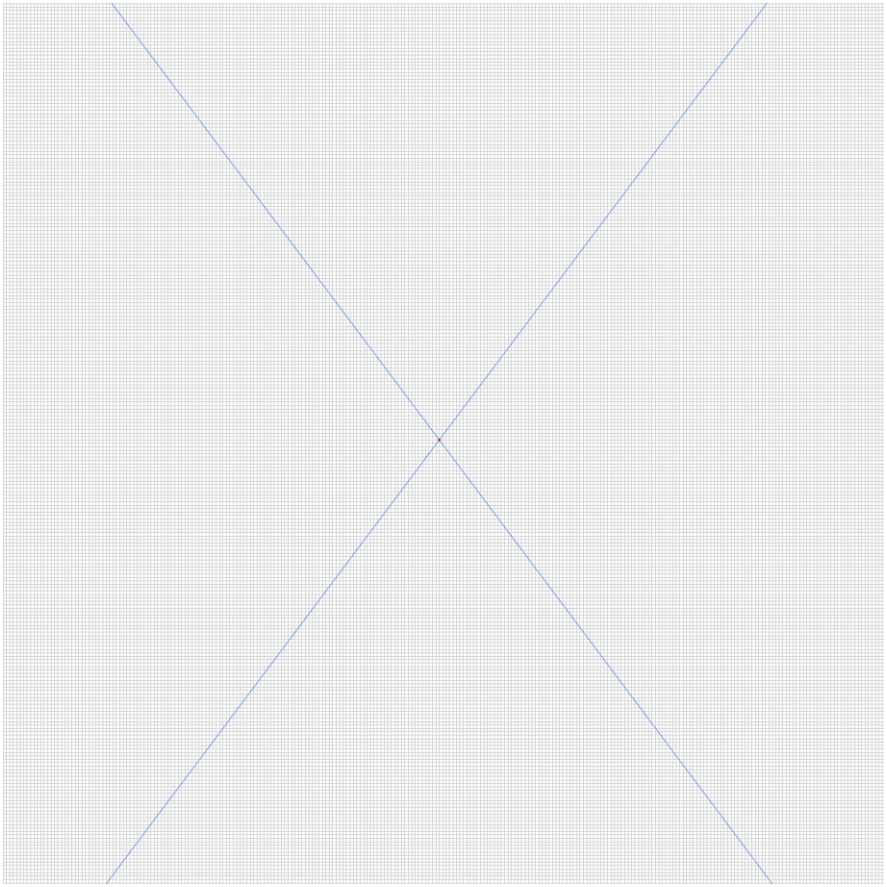
Surface force: f_x=0 [N/m2]
Prescribed displacement: d_y = 0 + 0*x + 0*y [m]



Labelled objects: vertex "y_average"

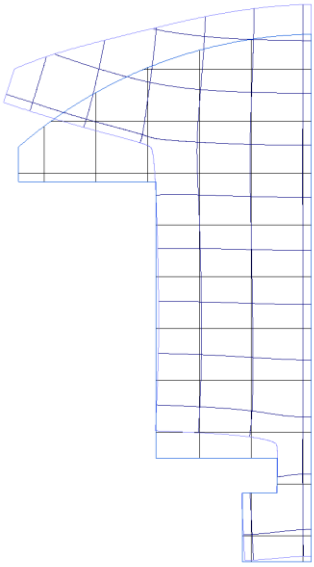
There are (1) objects with this label

External force f_x=0 [N/m]
Elastic support k_x=0 [N/m], dx_0=0[m]
External force f_y=0 [N/m]
Elastic support k_y=0 [N/m], dy_0=0[m]



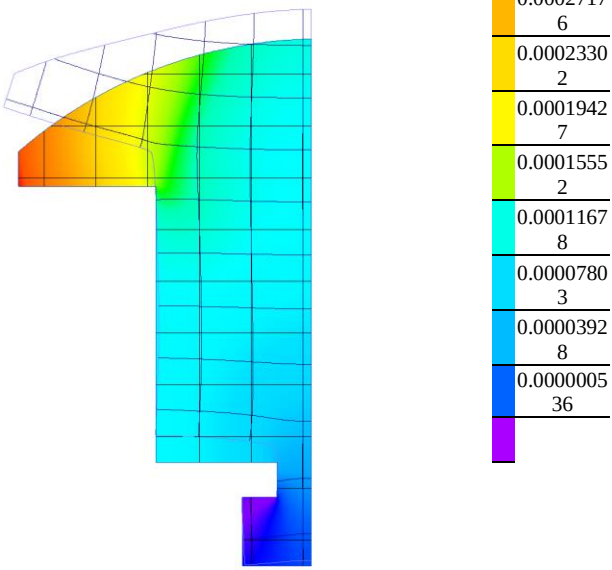
Results

Field lines



Results

Color map of Displacement [m]



Nonlinear dependencies

No non-linear dependencies are used in this problem data