

Problem info

Problem type: Stress Analysis

Geometry model class: Axisymmetric

Problem database file names:

- Problem: *Coupl4SA.pbm*
- Geometry: *Coupl4.mod*
- Material Data: *Coupl4sa.dsa*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *Magnetic Forces: Coupl4ms.pbm*

Geometry model

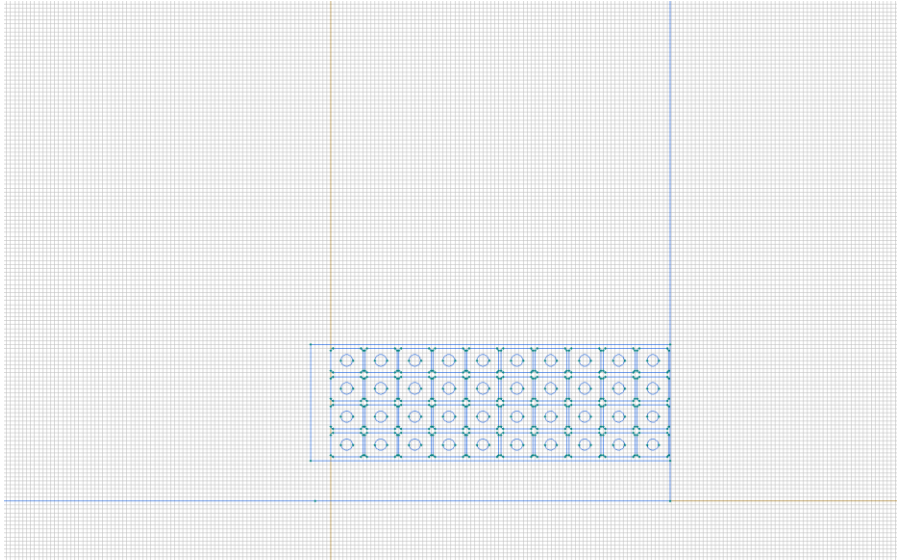


Table 1. Geometry model statistics

	With Label	Total
Blocks	3	82
Edges	2	410
Vertices	0	409

Number of nodes: 15138.

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:

- [Plastic](#)
- [Copper](#)
- [Air](#)
-

Edges:

- [Equatorial plane](#)
- [Boundary](#)
-

Vertices:

Detailed information about each label is listed below.

Labelled objects: block "Plastic"

There are (1) objects with this label

Young's moduli: $E_x=200000000000$ [N/m²],

$E_y=200000000000$ [N/m²], $E_z=200000000000$ [N/m²]

Poisson's ratios: $\nu_{yx}=0.35$, $\nu_{zx}=0.35$, $\nu_{zy}=0.35$

Shear modulus: $G_{xy}=74070000000$ [N/m²]

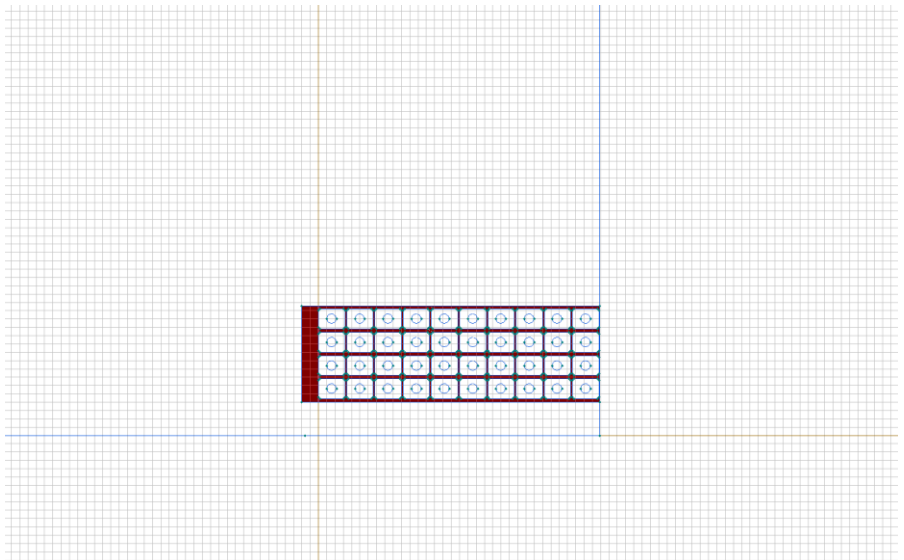
Allowable tension: $\sigma_x=1000000000$ [N/m²],

$\sigma_y=1000000000$ [N/m²]

Allowable compression: $\sigma_x=1000000000$ [N/m²],

$\sigma_y=1000000000$ [N/m²]

Allowable shear: $\tau_{xy}(+)=0$ [N/m²], $\tau_{xy}(-)=0$ [N/m²]



Labelled objects: block "Copper"

There are (40) objects with this label

Young's moduli: $E_x=77400000000$ [N/m²],

$E_y=77400000000$ [N/m²], $E_z=77400000000$ [N/m²]

Poisson's ratios: $\nu_{yx}=0.335$, $\nu_{zx}=0.335$, $\nu_{zy}=0.335$

Shear modulus: $G_{xy}=28989000000$ [N/m²]

Coefficient of thermal expansion:

$a_x=1.63999993674224E-05$ [1/K],

$a_y=1.63999993674224E-05$ [1/K],

$a_z=1.63999993674224E-05$ [1/K]

Difference of temperature: $\Delta T=0$ [K]

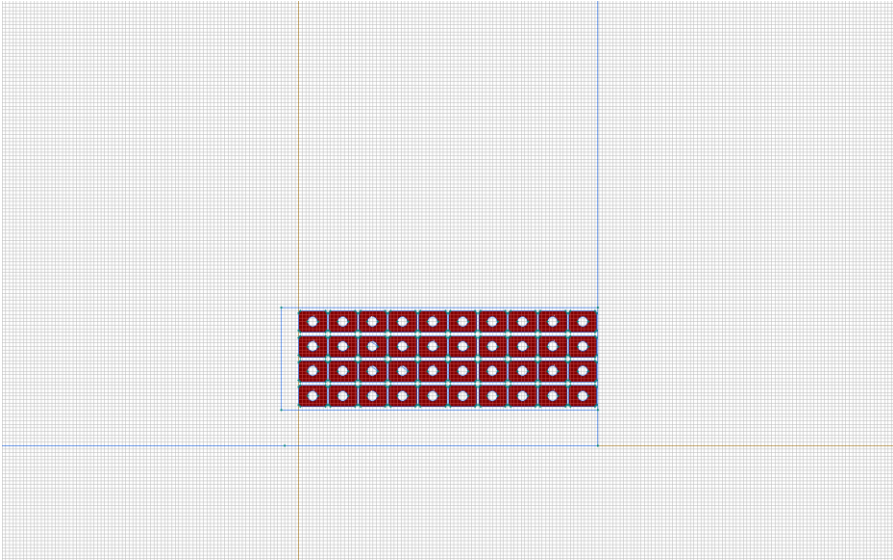
Allowable tension: $\sigma_x=220000000$ [N/m²],

$\sigma_y=220000000$ [N/m²]

Allowable compression: $\sigma_x=220000000$ [N/m²],

$\sigma_y=220000000$ [N/m²]

Allowable shear: $\tau_{xy(+)}=0$ [N/m²], $\tau_{xy(-)}=0$ [N/m²]



Labelled objects: block "Air"

There are (41) objects with this label

Young's moduli: $E_x=0$ [N/m²], $E_y=0$ [N/m²], $E_z=0$ [N/m²]

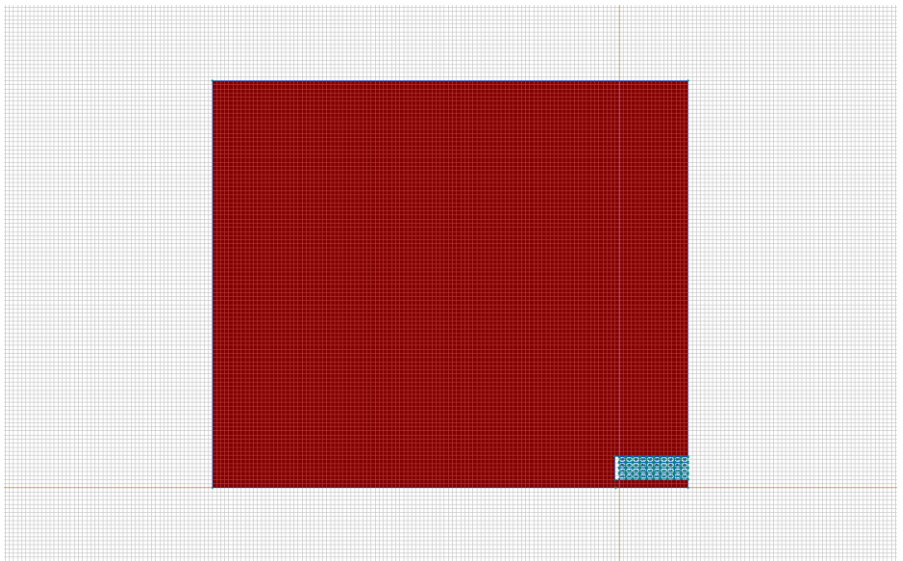
Poisson's ratios: $\nu_{yx}=0$, $\nu_{zx}=0$, $\nu_{zy}=0$

Shear modulus: $G_{xy}=0$ [N/m²]

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]

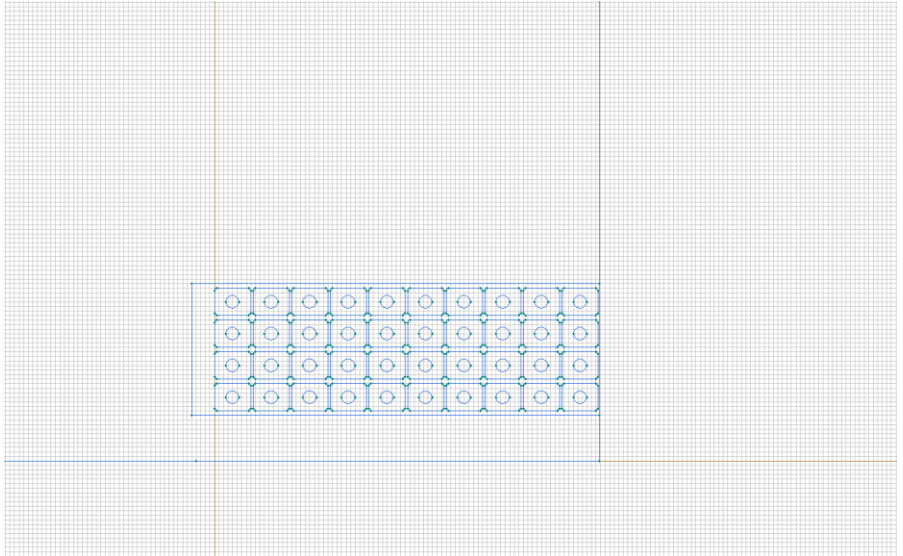


Labelled objects: edge "Equatorial plane"

There are (1) objects with this label

Prescribed displacement: $d_x=0$ [m]

Surface force: $f_y=0$ [N/m²]

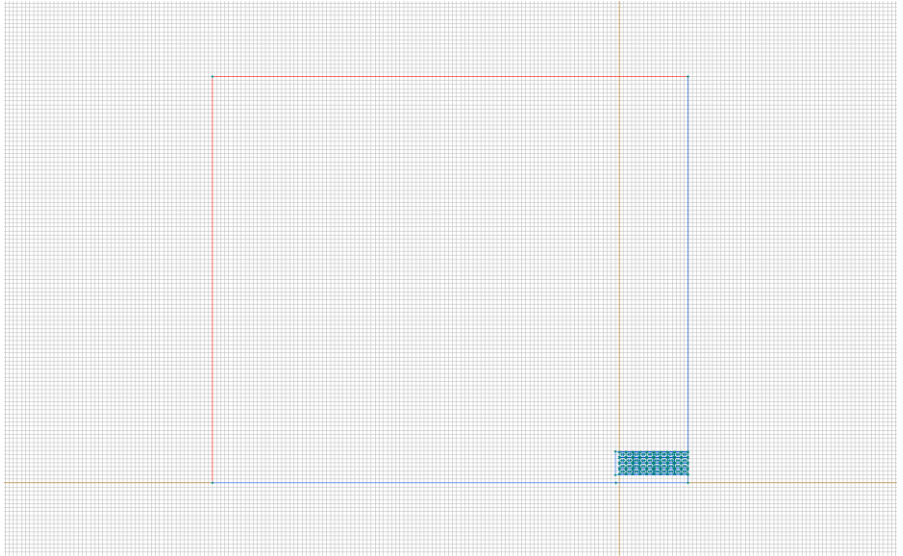


Labelled objects: edge "Boundary"

There are (2) objects with this label

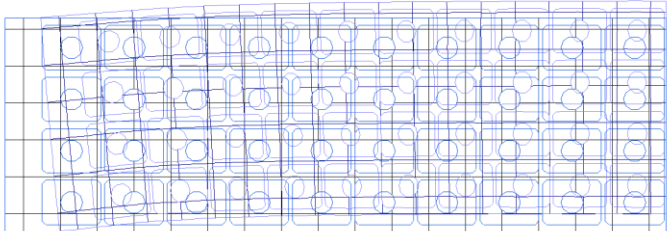
Surface force: $f_x=0$ [N/m²]

Surface force: $f_y=0$ [N/m²]



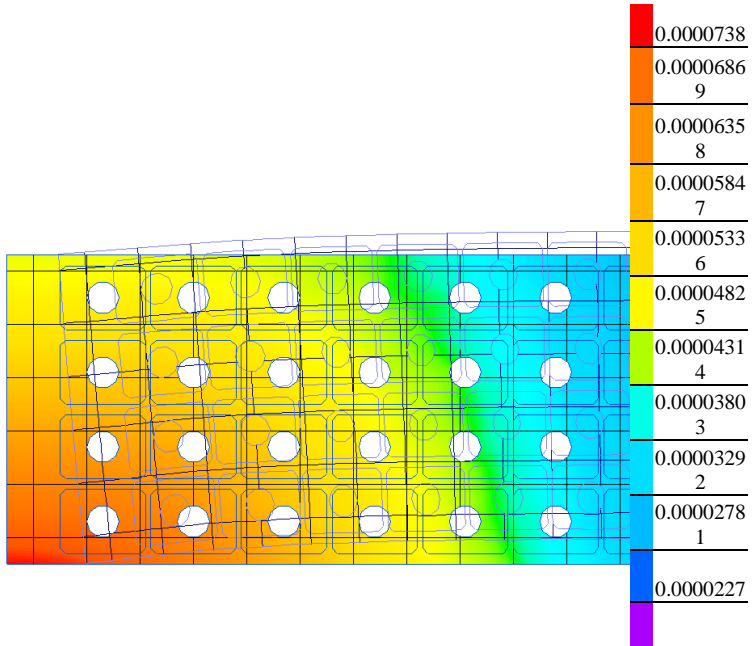
Results

Field lines



Results

Color map of Displacement [m]



Nonlinear dependencies

No non-linear dependencies are used in this problem data

