

Problem info

Problem type: Transient Magnetics (integration time: 118000 s.)

Geometry model class: Axisymmetric

Problem database file names:

- Problem: *TEMagn3.pbm*
- Geometry: *Temagn3.mod*
- Material Data: *Temagn3.dms*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

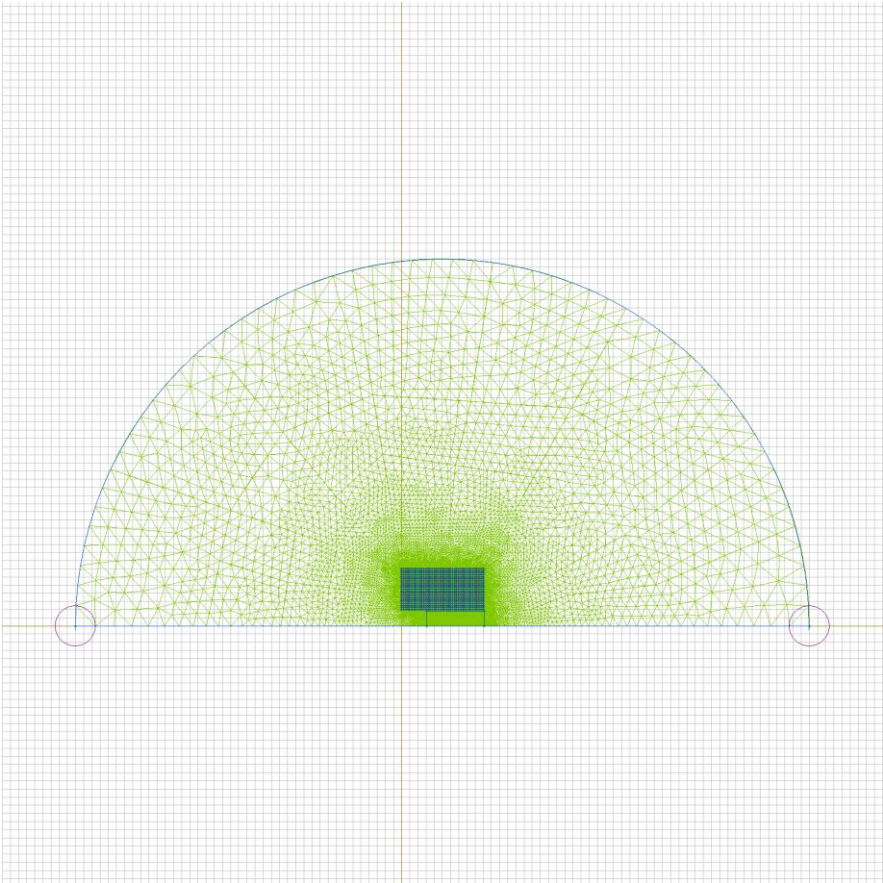


Table 1. Geometry model statistics

	With Label	Total
Blocks	3	802
Edges	1	1667
Vertices	0	867

Number of nodes: 25483.

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:

- [winding](#)
- [air](#)
- [plunger](#)
-

Edges:

- [boundary](#)
-

Vertices:

Detailed information about each label is listed below.

Labelled objects: block "winding"

There are (800) objects with this label

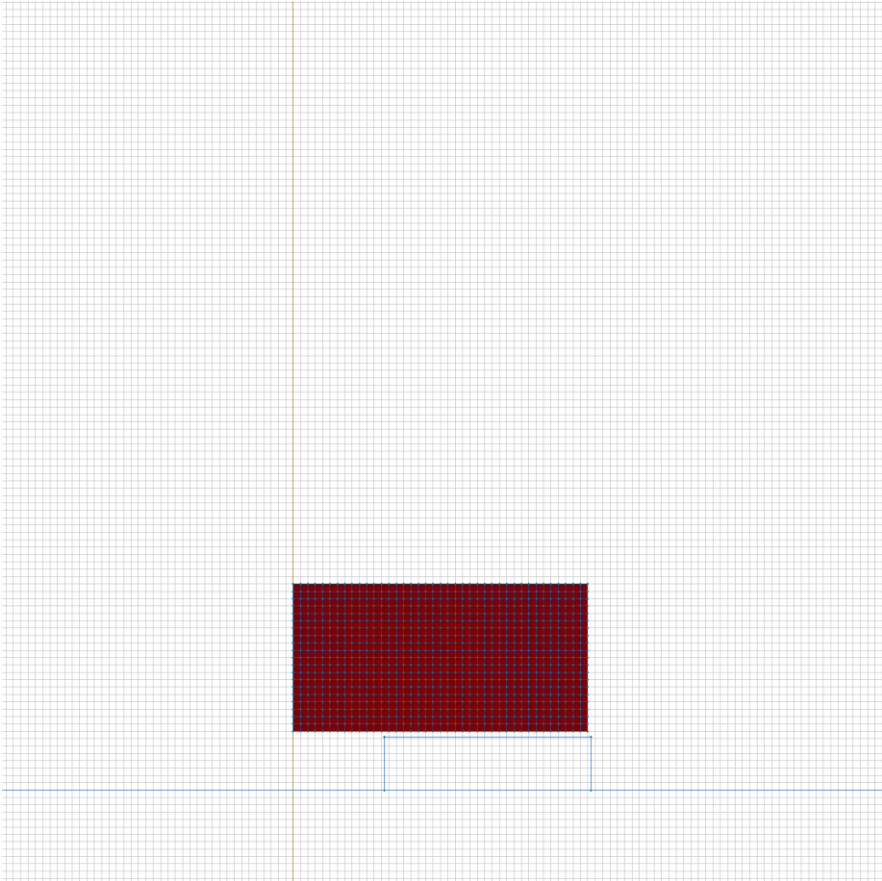
Relative magnetic permeability: $\mu_x=1$, $\mu_y=1$

Electric conductivity: $\sigma(T)=\text{nonlinear}$ (see Table 2 in the "Nonlinear dependencies" section)

Electric conductivity reference temperature: $T=180*\exp(-t/10/3600) + 273 + 20, K$ [K]

Voltage: $U=12$ [V]

Conductor's connection: in series



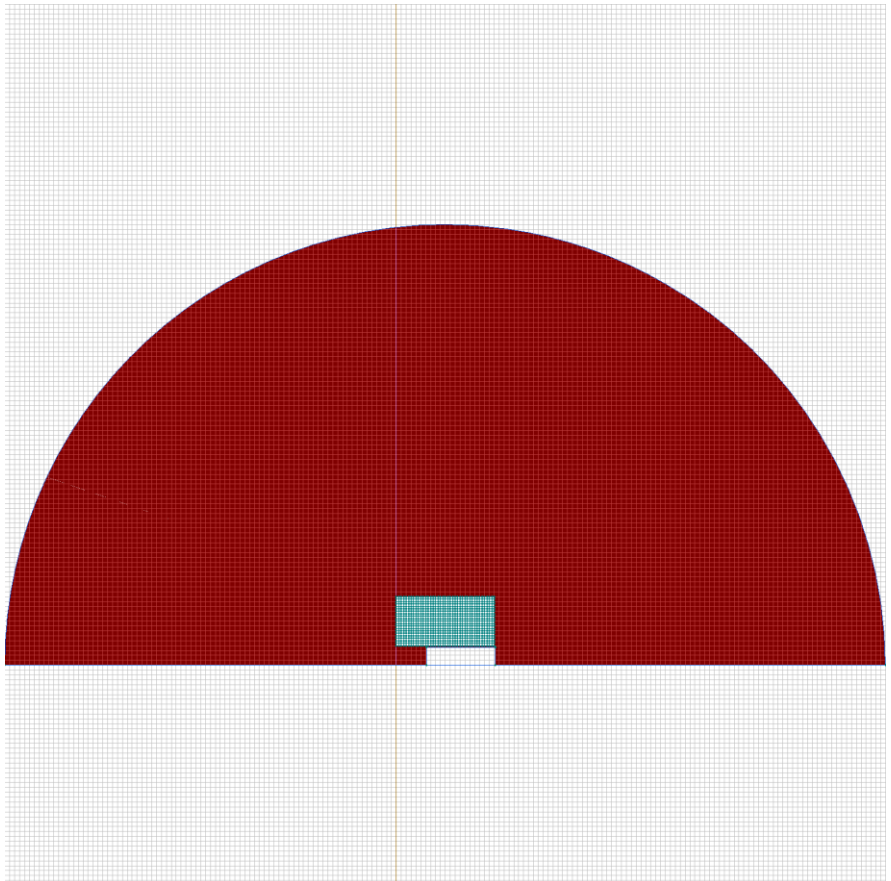
Labelled objects: block "air"

There are (1) objects with this label

Relative magnetic permeability: $\mu_x=1$, $\mu_y=1$

Current density: $j=0$ [A/m²]

Conductor's connection: in parallel



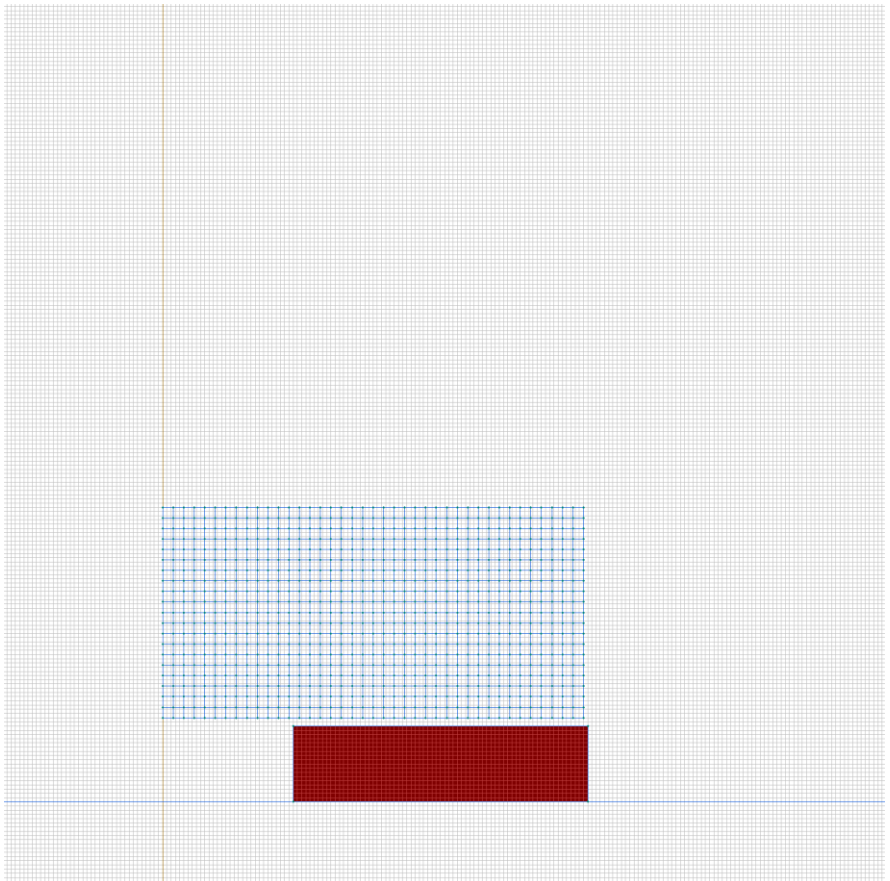
Labelled objects: block "plunger"

There are (1) objects with this label

Relative magnetic permeability: $\mu_x=400$, $\mu_y=400$

Current density: $j=0$ [A/m²]

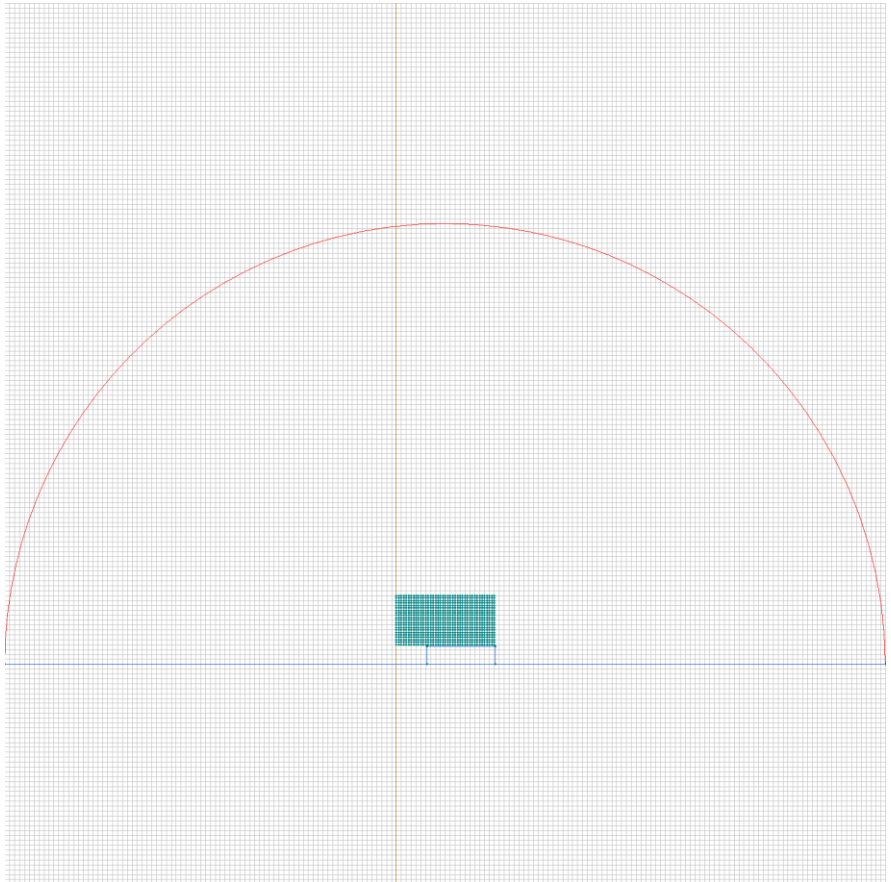
Conductor's connection: in parallel



Labelled objects: edge "boundary"

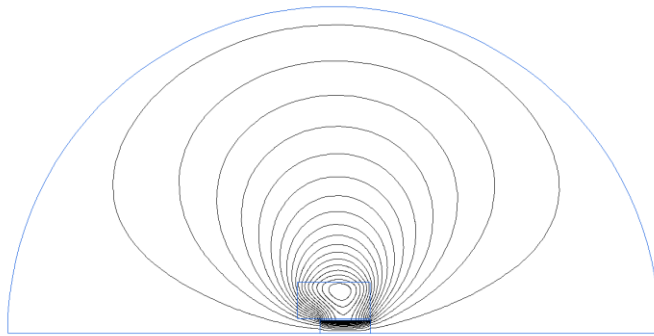
There are (1) objects with this label

Magnetic potential: $A=0$ [Wb/m]



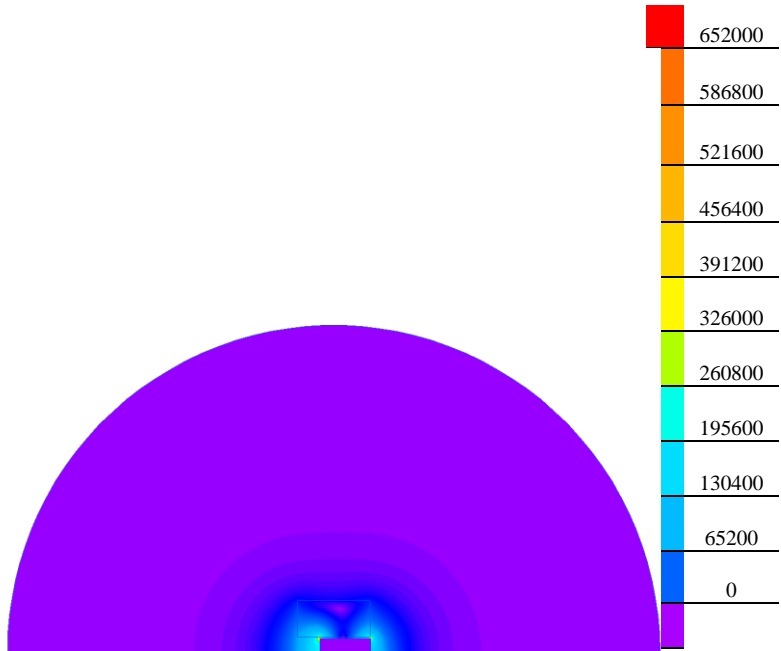
Results

Field lines



Results

Color map of Strength $|H|$ [A/m]



Nonlinear dependencies

Table 2. Electric conductivity

T [K]	sigma [S/m]
253	60000000
273	56000000
313	46000000
373	39000000
423	37000000
473	36000000