

Problem info

Problem type: AC Magnetics , frequency: 50 Hz,

Geometry model class: Axisymmetric

Problem database file names:

- Problem: *HMagn5.pbm*
- Geometry: *Hmagn5.mod*
- Material Data: *Hmagn5.dhe*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

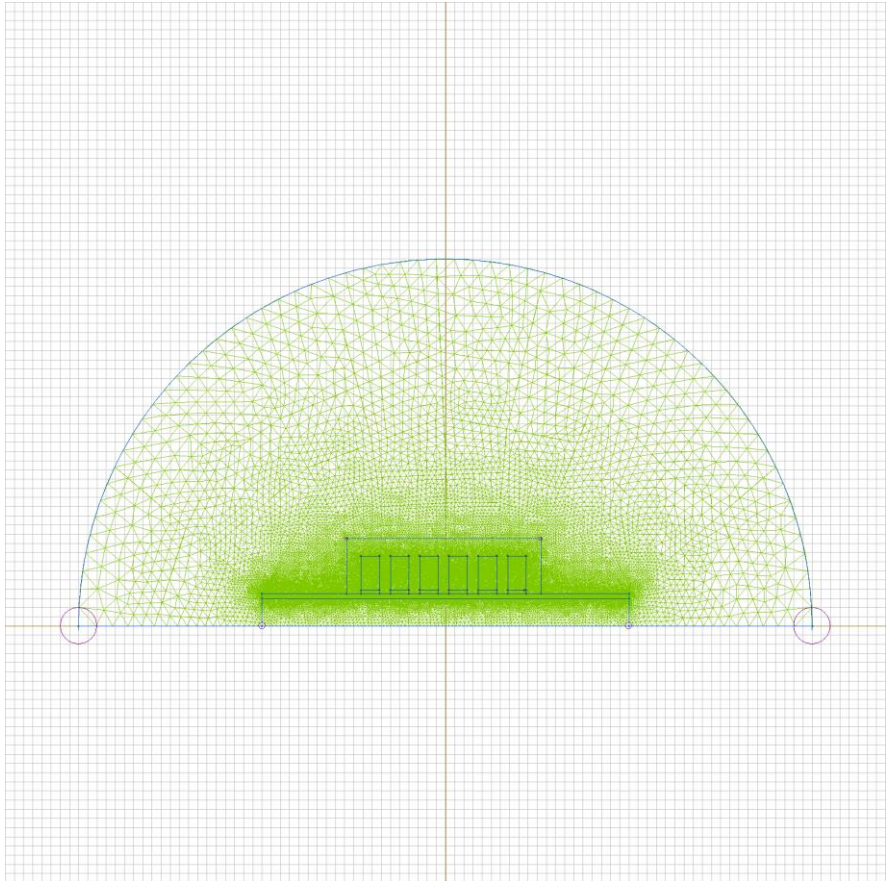


Table 1. Geometry model statistics

	With Label	Total
Blocks	10	16
Edges	1	64
Vertices	0	49

Number of nodes: 34827.

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:

- [core](#)
- [air](#)
- [A](#)
- [B](#)
- [tube](#)
- [Z](#)
- [X](#)
- [Y](#)
- [liquid metal](#)
- [C](#)
-

Edges:

- [boundary](#)
-

Vertices:

Detailed information about each label is listed below.

Labelled objects: block "core"

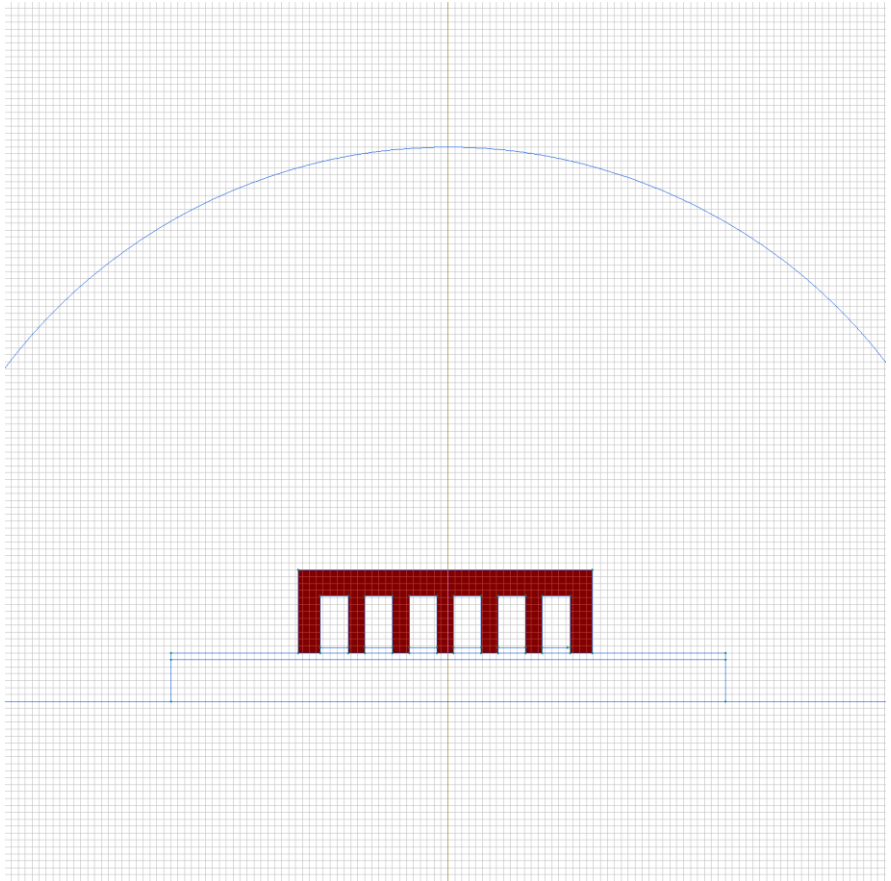
There are (1) objects with this label

Relative magnetic permeability: $\mu_x=200$, $\mu_y=200$

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=0$ [A/m²], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "air"

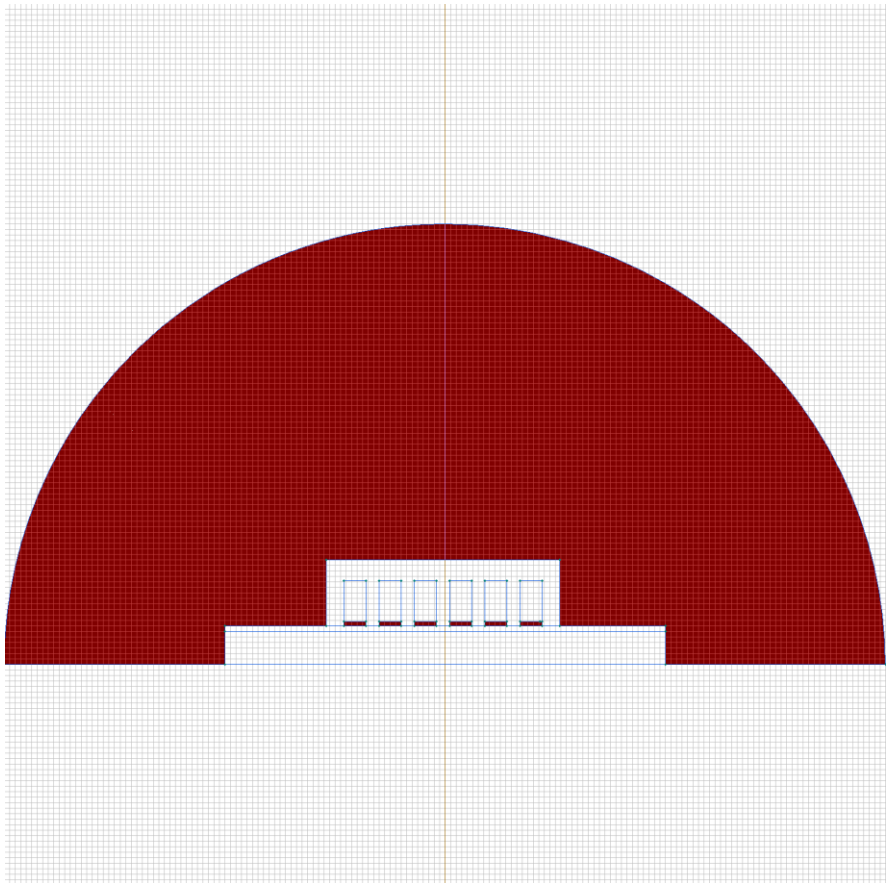
There are (7) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=0$ [A/m²], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "A"

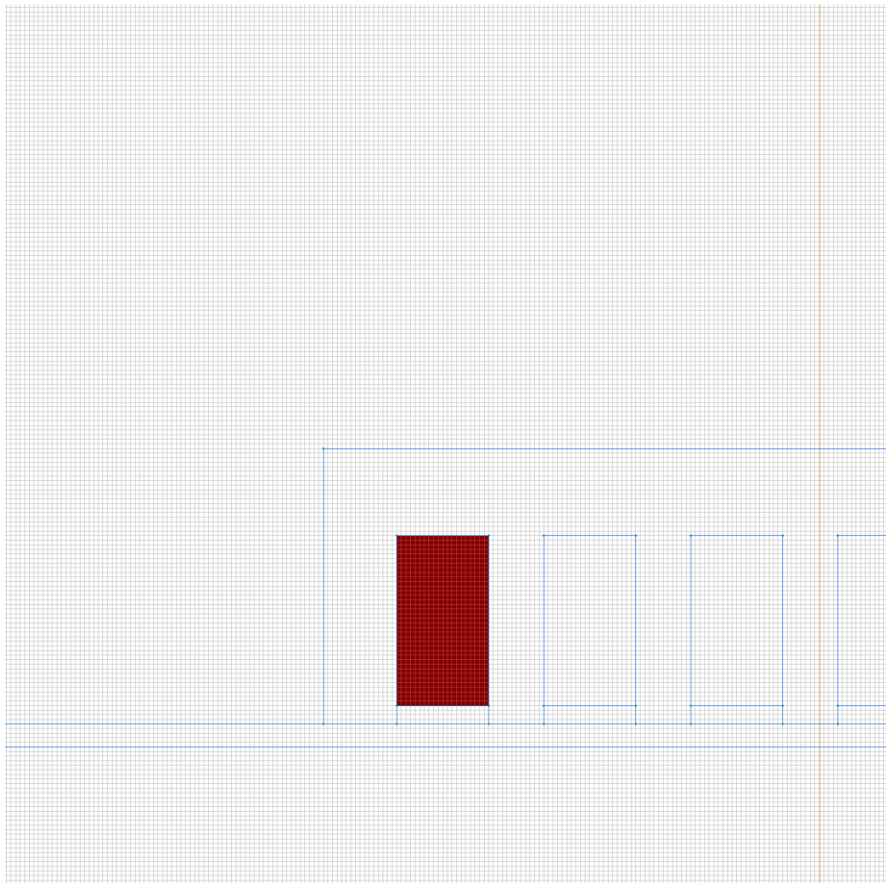
There are (1) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=6000000$ [A/m²], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "B"

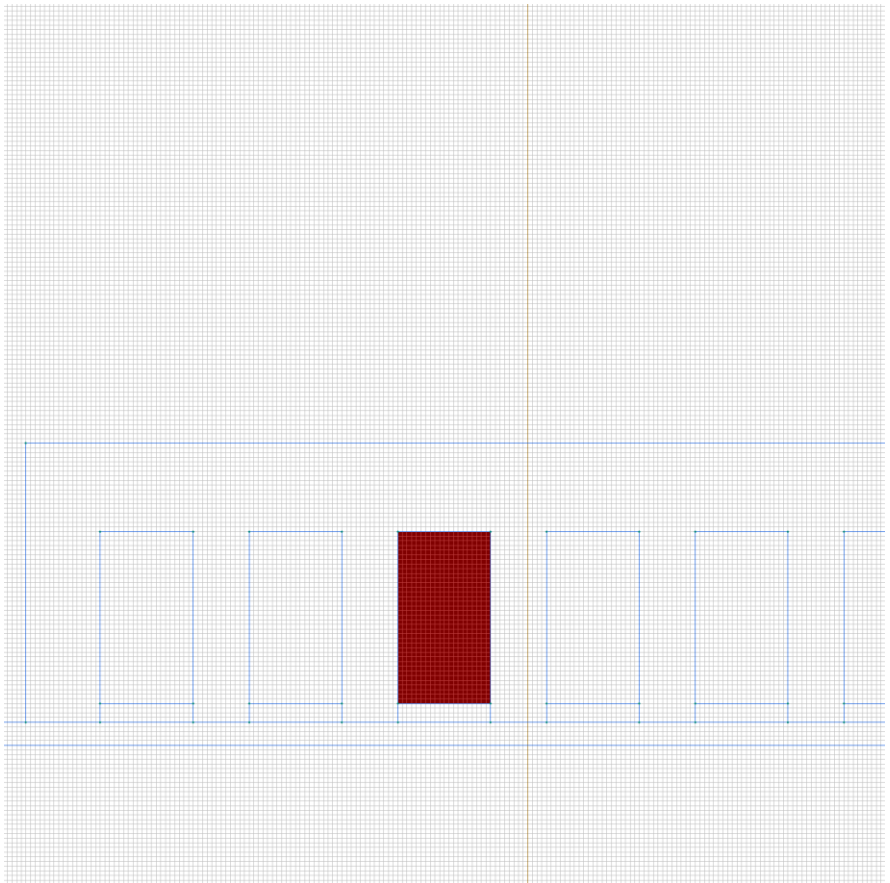
There are (1) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=6000000$ [A/m²], phase 120 [deg]

Conductor's connection: in parallel



Labelled objects: block "tube"

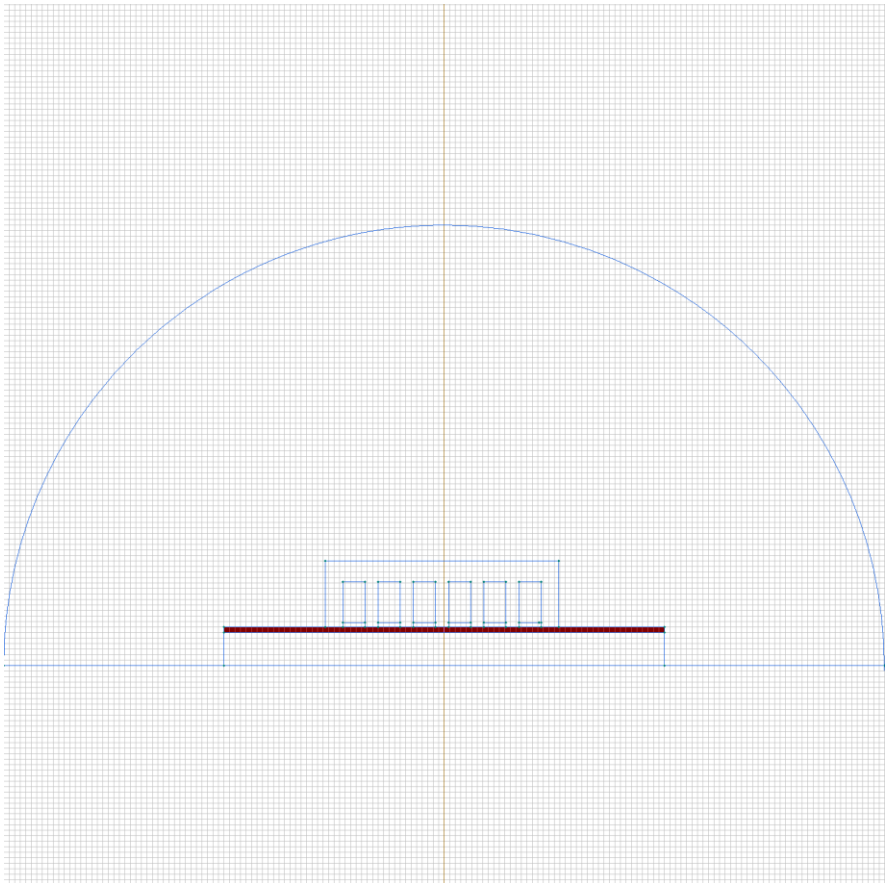
There are (1) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=0$ [A/m²], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "Z"

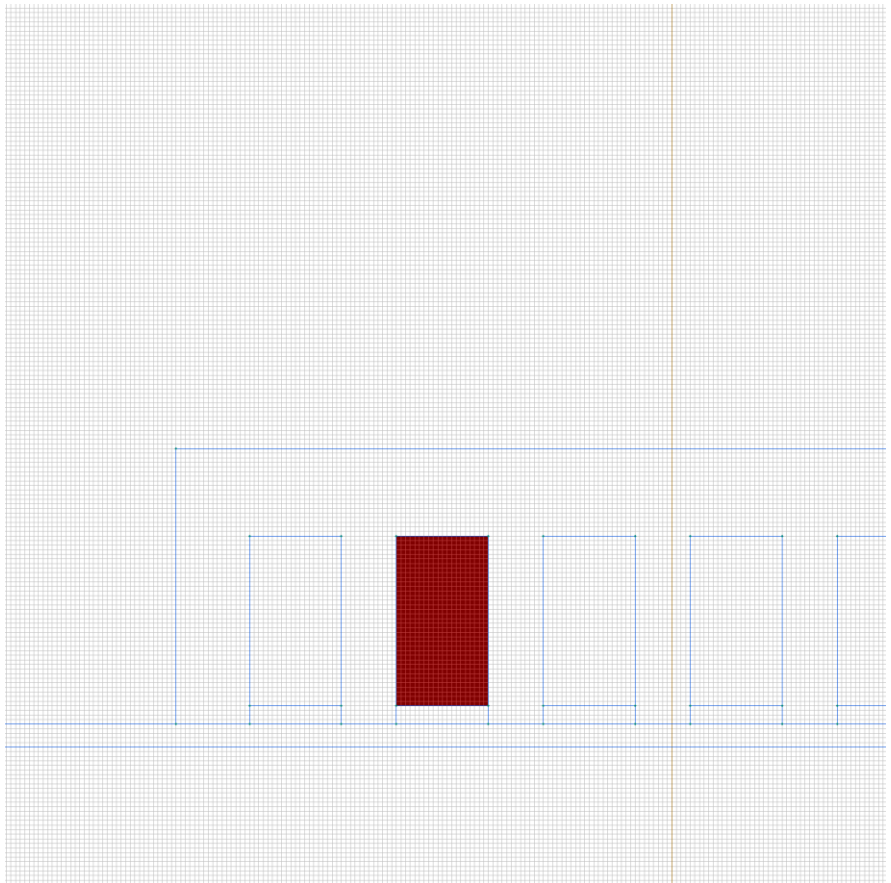
There are (1) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=-6000000$ [A/m²], phase 240 [deg]

Conductor's connection: in parallel



Labelled objects: block "X"

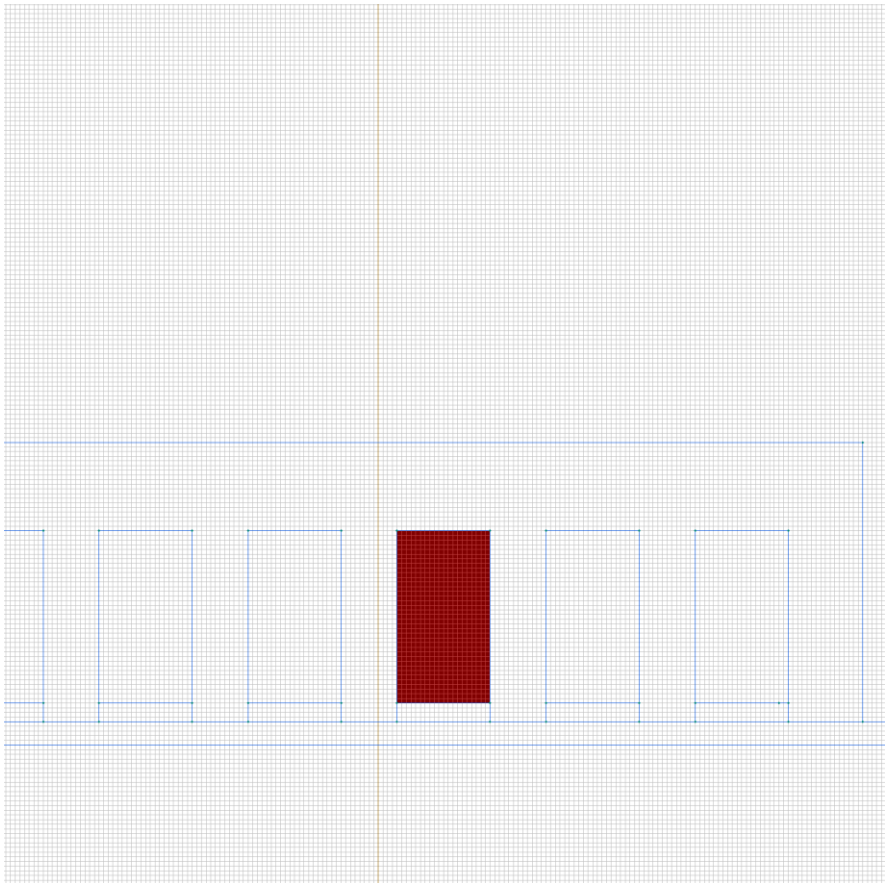
There are (1) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=-6000000$ [A/m²], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "Y"

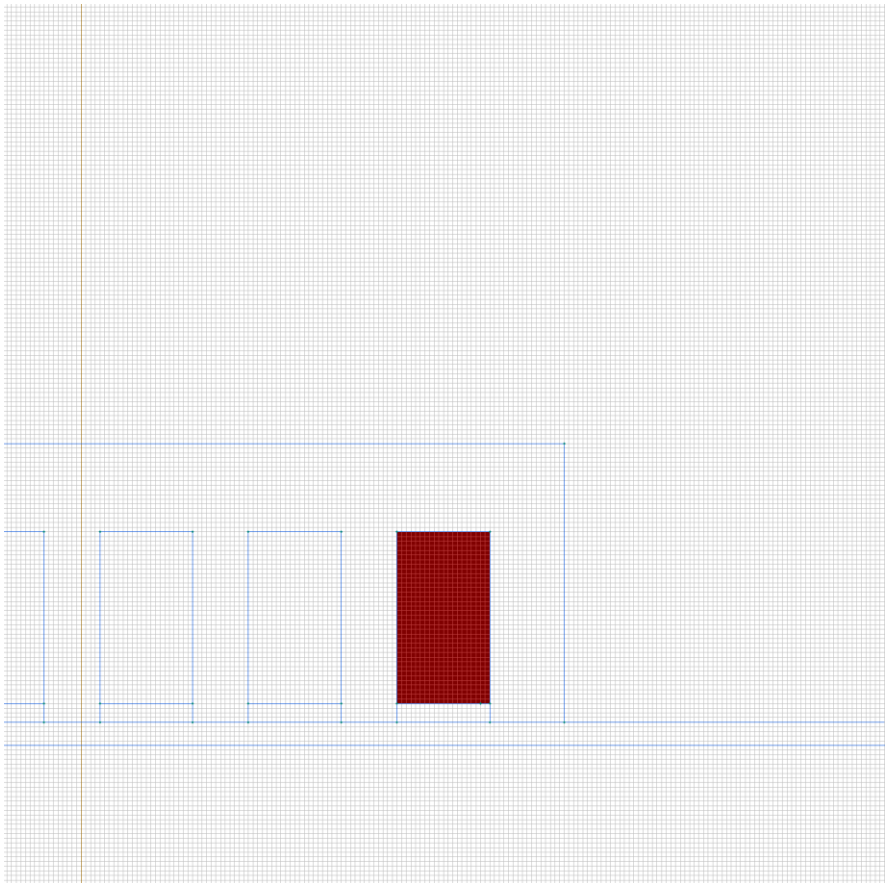
There are (1) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=-6000000$ [A/m²], phase 120 [deg]

Conductor's connection: in parallel



Labelled objects: block "liquid metal"

There are (1) objects with this label

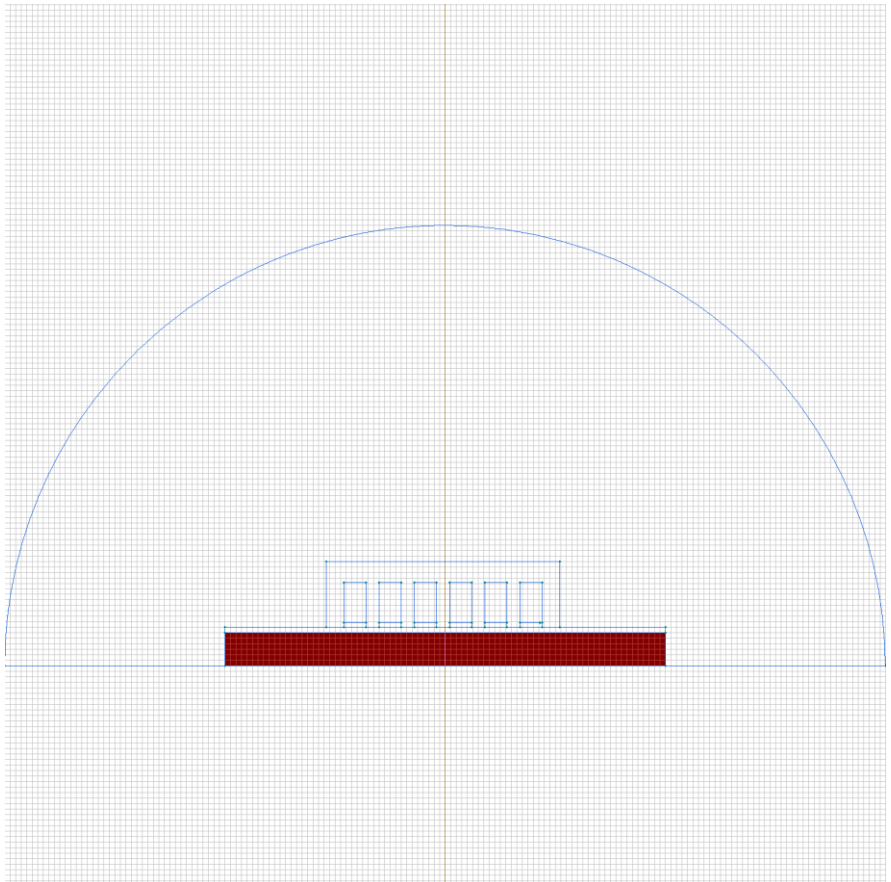
Relative magnetic permeability: $\mu_x=1$, $\mu_y=1$

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

Reference temperature: $T=436.9$ [K]

Voltage: $U=0$ [V], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "C"

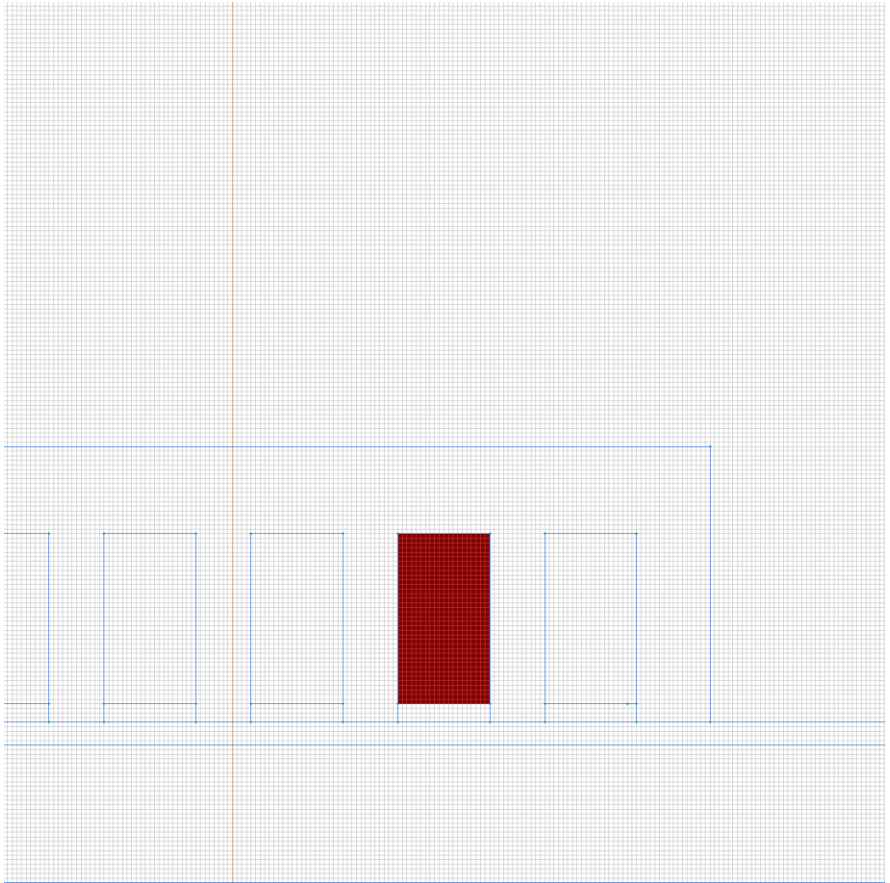
There are (1) objects with this label

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

Electric conductivity: $\sigma=0$ [S/m]

Current density: $j=6000000$ [A/m²], phase 240 [deg]

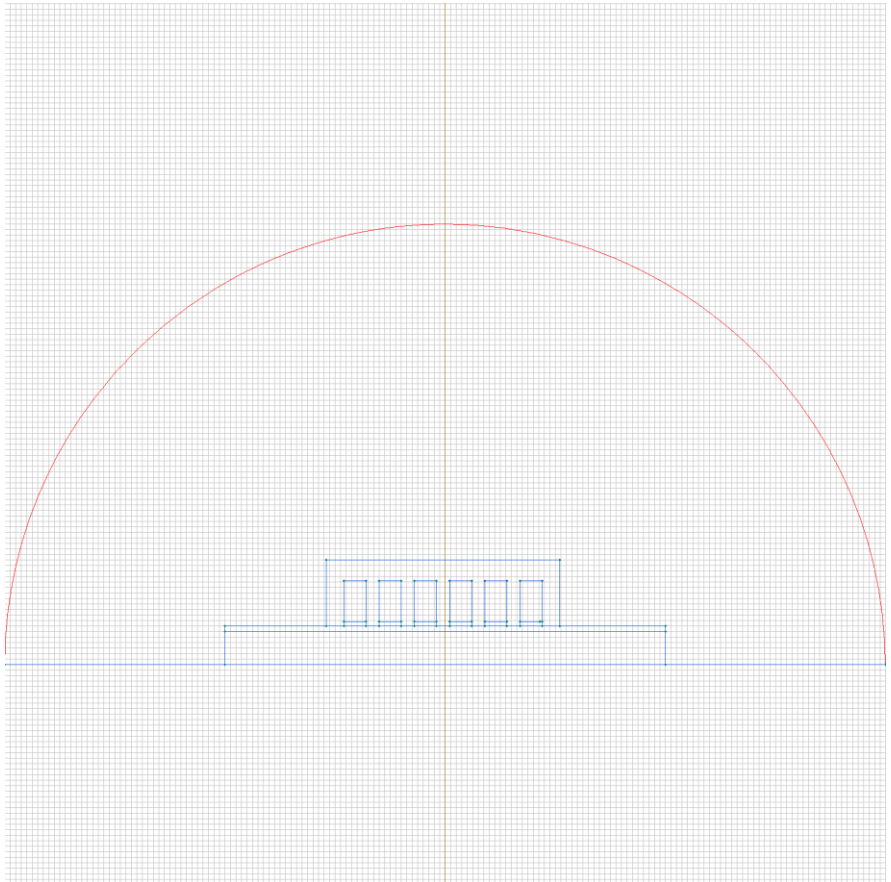
Conductor's connection: in parallel



Labelled objects: edge "boundary"

There are (1) objects with this label

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



[Problem info](#)

[Geometry model](#)

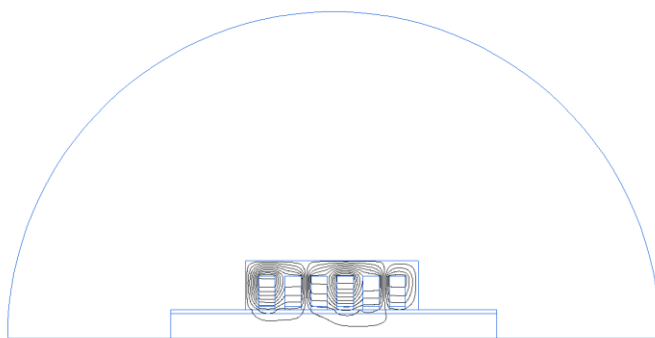
[Labelled Objects](#)

[Results](#)

[Nonlinear dependencies](#)

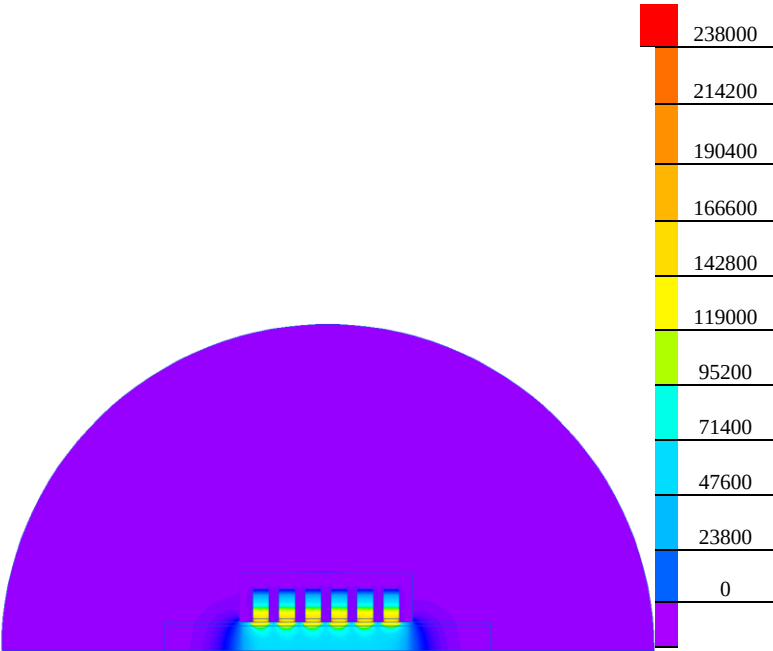
Results

Field lines



Results

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



Nonlinear dependencies

Table 2. Electric conductivity

T [K]	sigma [S/m]
373	18000000
600	10000000
900	6000000
1100	5000000