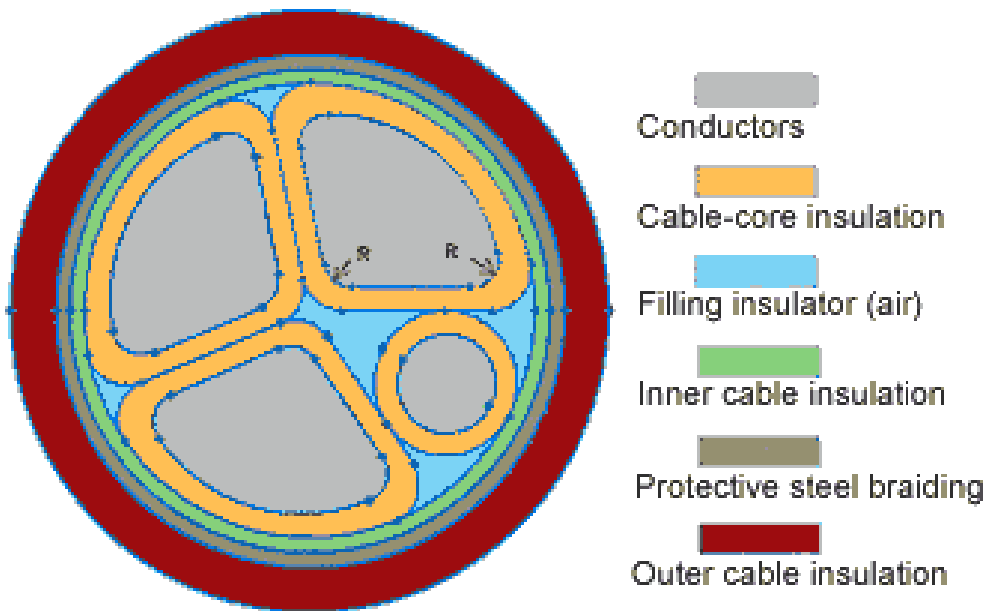


QuickField simulation report

Power cable parameters calculation

Automated determination of parameters of the high-voltage tetra-core cable



This automatically generated document consists of several sections, which specify the problem setup and finite element analysis simulation results. Navigation links in the top of each page lead to corresponding sections of this report.

Problem description and QuickField simulation files:

<https://quickfield.com/advanced/cable.htm>

Problem info

Problem type: AC Magnetics , frequency: 50 Hz,

Geometry model class: Plane-Parallel

Problem database file names:

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

Results taken from other problems:

- *none*

Geometry model

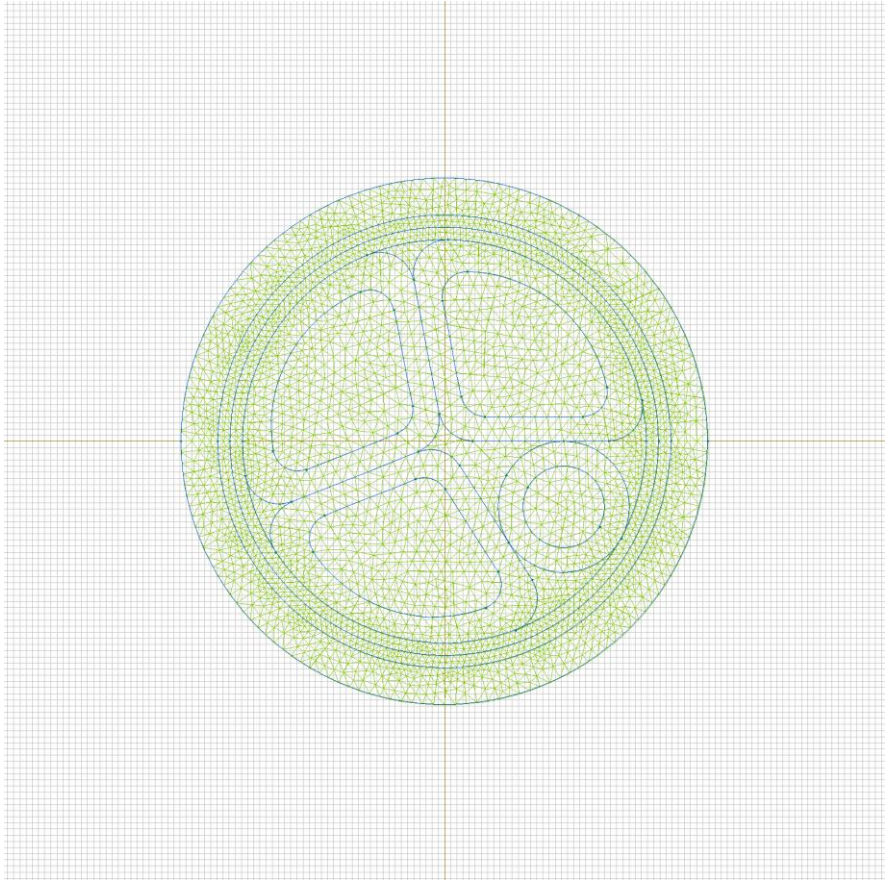


Table 1. Geometry model statistics

	With Label	Total
Blocks	9	16
Edges	6	54
Vertices	4	46

Number of nodes: 3131.

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:

- [Conductor1](#)
- [Core insulator](#)
- [Air](#)
- [Conductor3](#)
- [Conductor2](#)
- [Null conductor](#)
- [Inner insulator](#)
- [Steel braiding](#)
- [Outer insulator](#)
-

Edges:

- [Potential1](#)
- [Potential2](#)
- [Potential3](#)
- [Potential0](#)
- [Equipotential](#)
- [Bound](#)
-

Vertices:

- [Charge1](#)
- [Charge2](#)
- [Charge3](#)
- [Charge0](#)
-

Detailed information about each label is listed below.

Labelled objects: block "Conductor1"

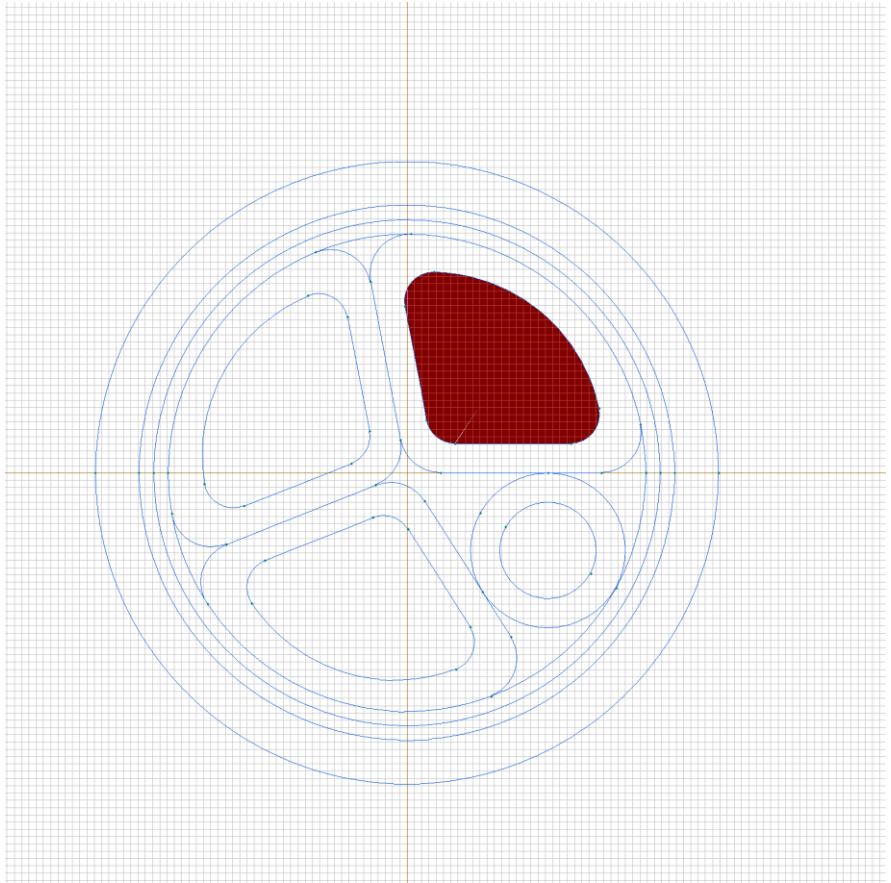
There are (1) objects with this label

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

Electric conductivity: $\sigma=36000000$ [S/m]

Total current: $I=0$ [A], phase 240 [deg]

Conductor's connection: in parallel



Labelled objects: block "Core insulator"

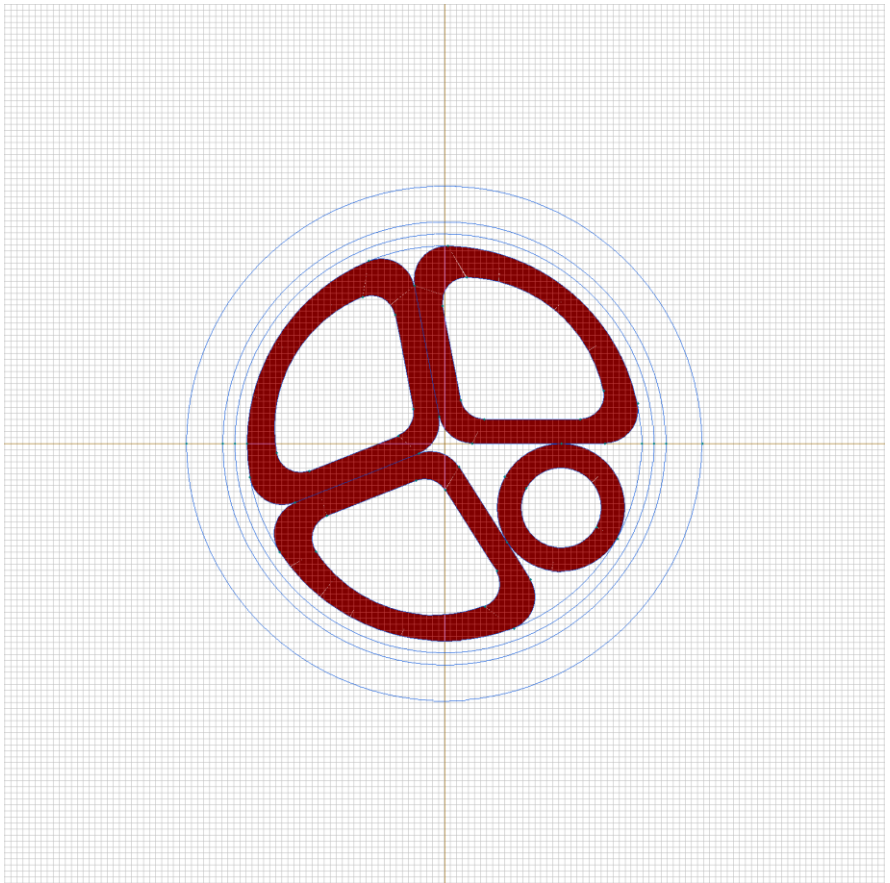
There are (4) objects with this label

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 "Air"

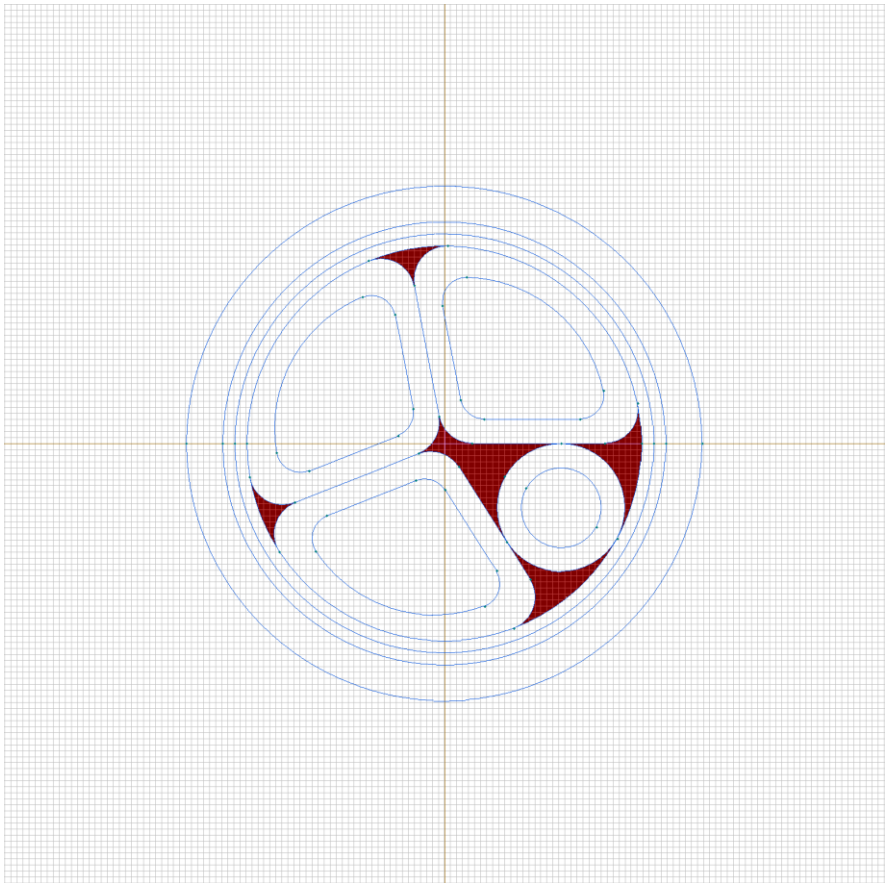
There are (5) objects with this label

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 "Conductor3"

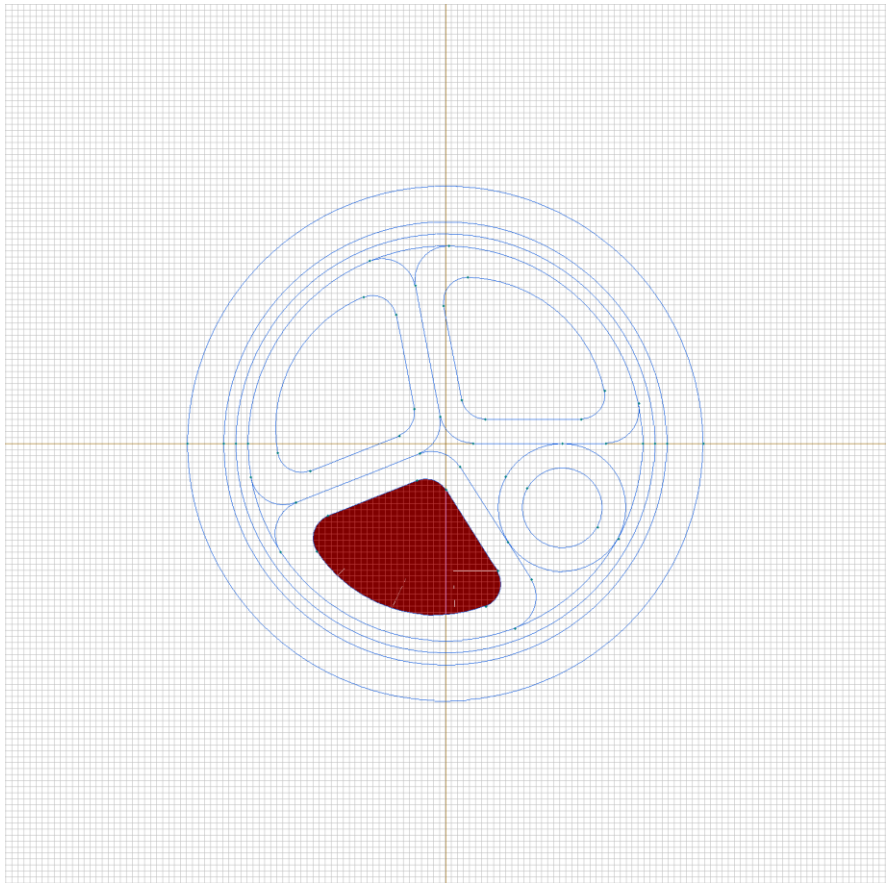
There are (1) objects with this label

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

Electric conductivity: $\sigma=36000000$ [S/m]

Total current: $I=0$ [A], phase 120 [deg]

Conductor's connection: in parallel



Labelled objects: block "Conductor2"

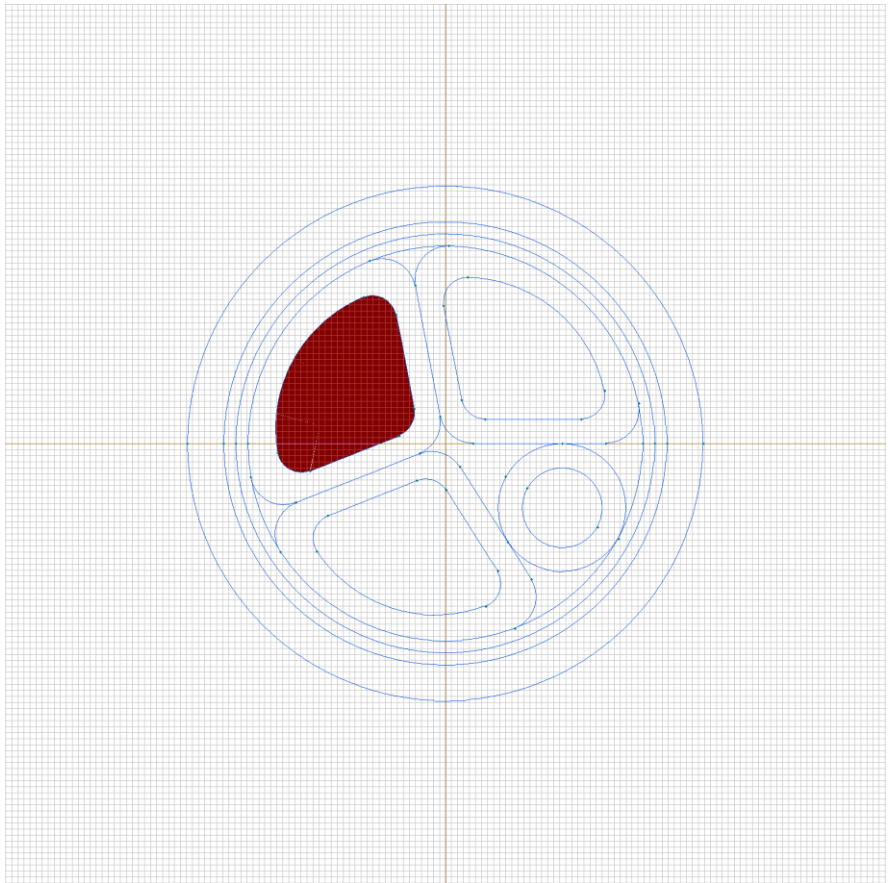
There are (1) objects with this label

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

Electric conductivity: $\sigma=36000000$ [S/m]

Total current: $I=0$ [A], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "Null conductor"

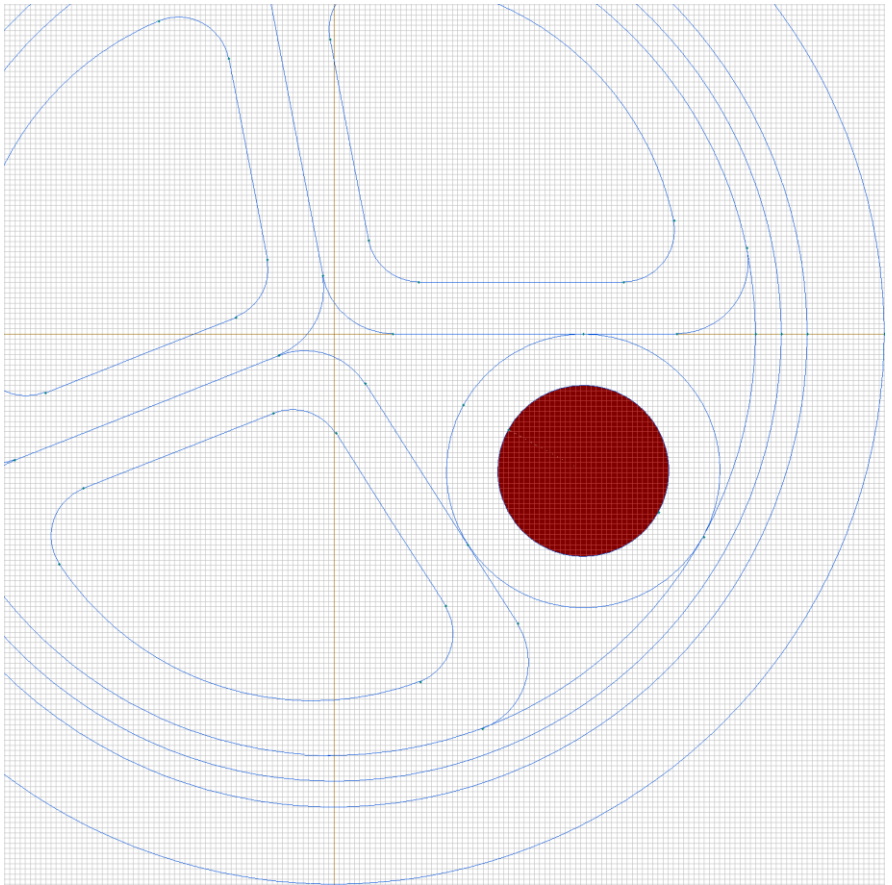
There are (1) objects with this label

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

Electric conductivity: $\sigma=36000000$ [S/m]

Total current: $I=1$ [A], phase 0 [deg]

Conductor's connection: in parallel



Labelled objects: block "Inner insulator"

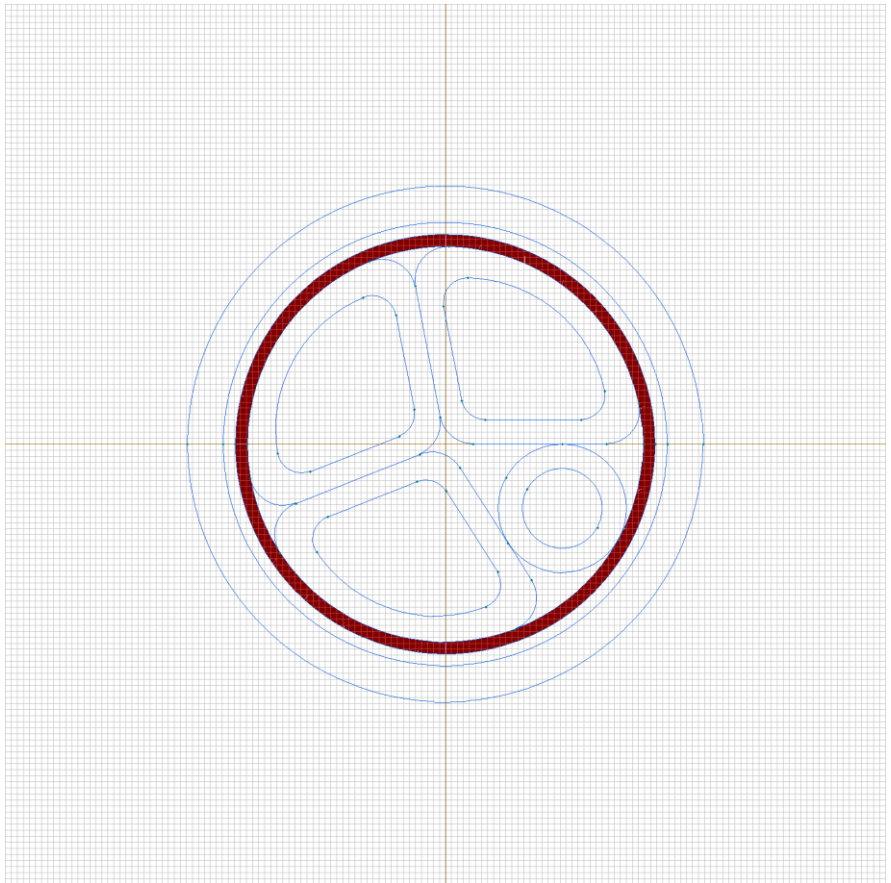
There are (1) objects with this label

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 "Steel braiding"

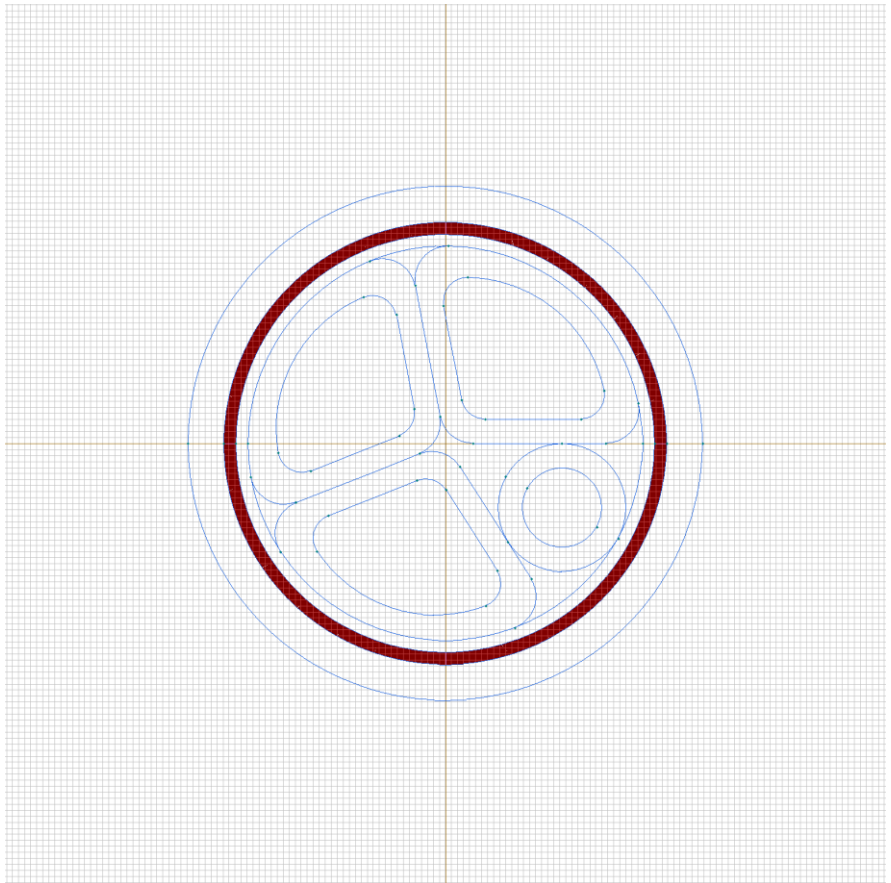
There are (1) objects with this label

Relative magnetic permeability: $\mu_x=1000$, $\mu_y=1000$

Electric conductivity: $\sigma=6000000$ [S/m]

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

Conductor's connection: in parallel



Labelled objects: block "Outer insulator"

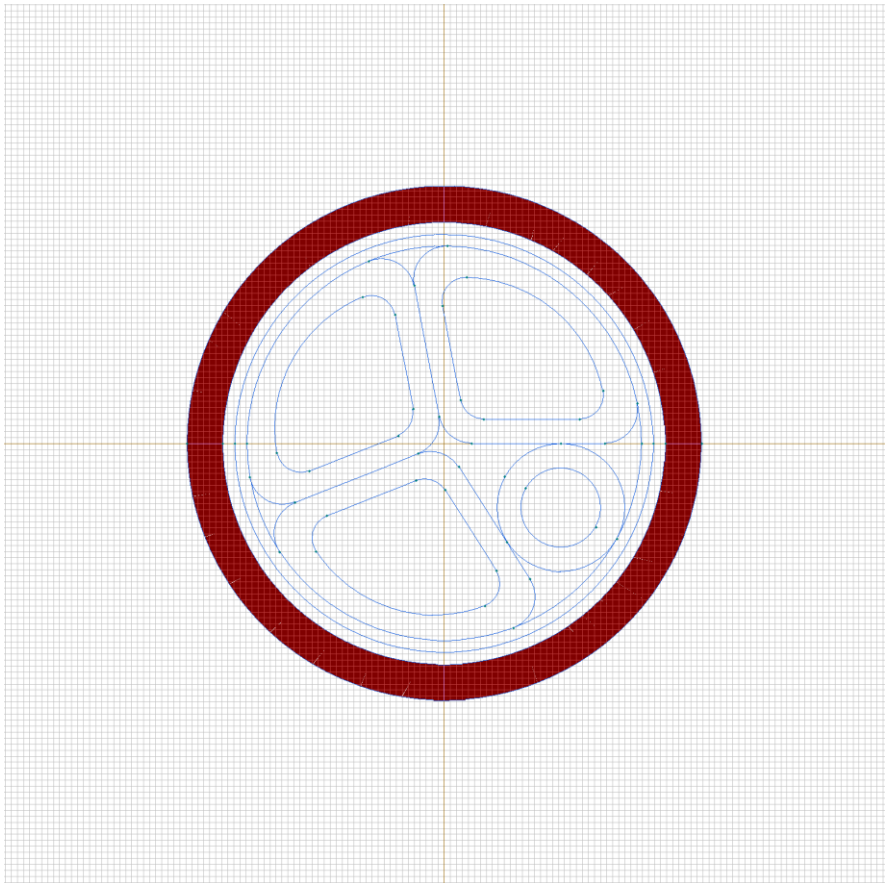
There are (1) objects with this label

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

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

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

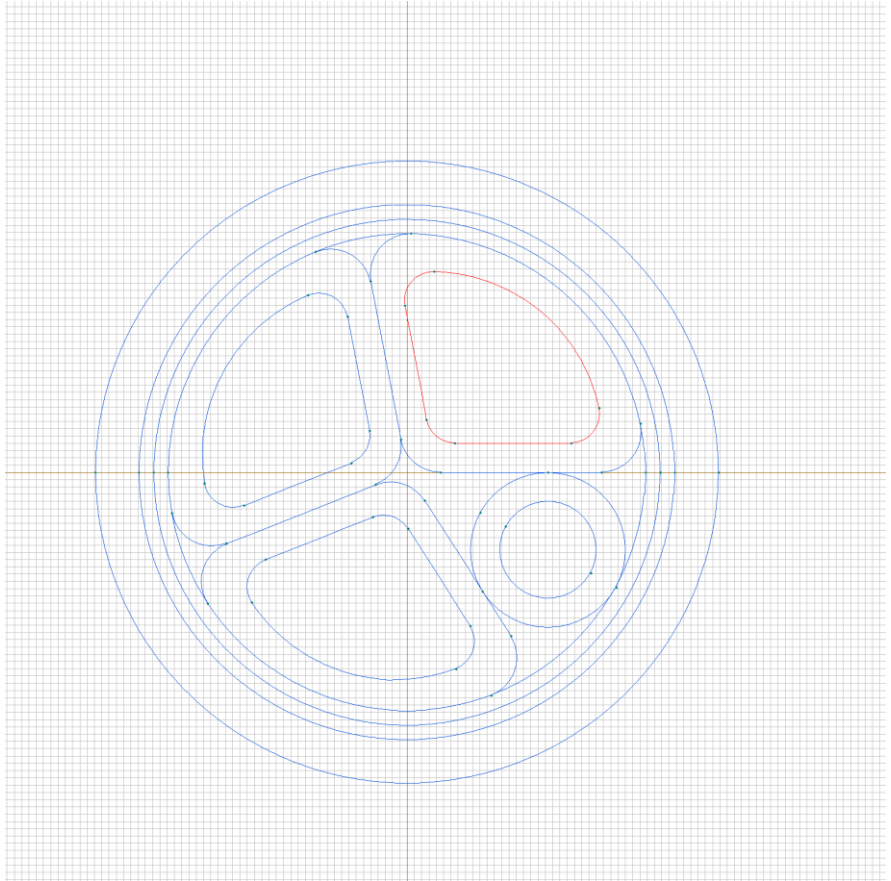
Conductor's connection: in parallel



Labelled objects: edge "Potential1"

There are (6) objects with this label

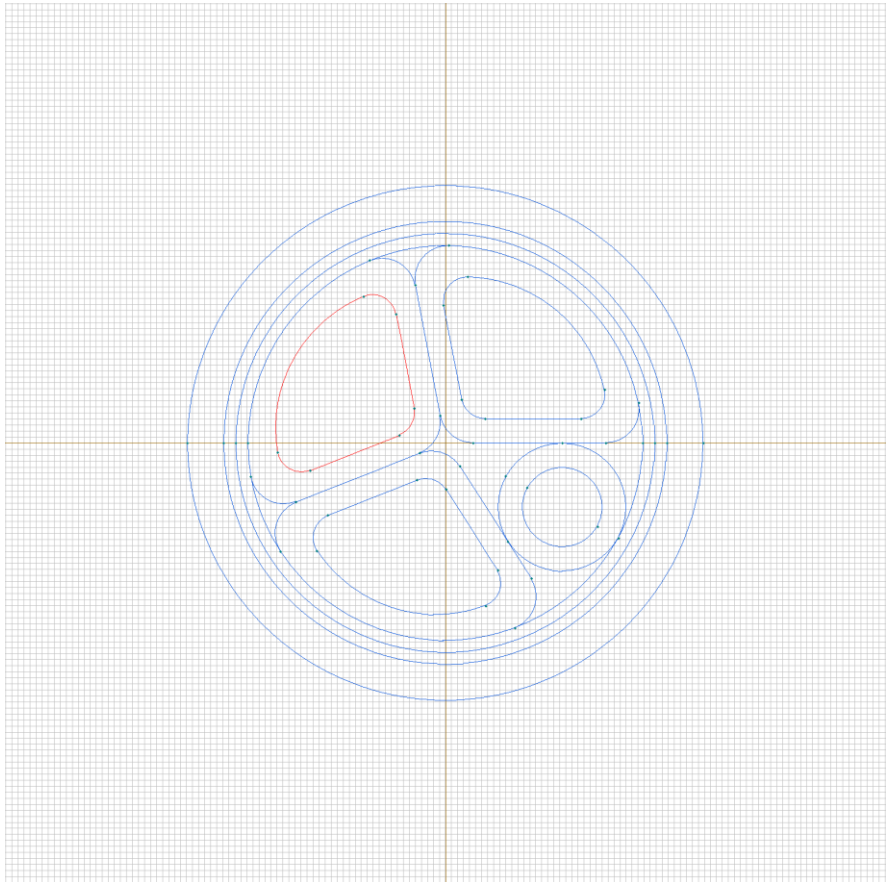
No material data (boundary conditions) are specified



Labelled objects: edge "Potential2"

There are (6) objects with this label

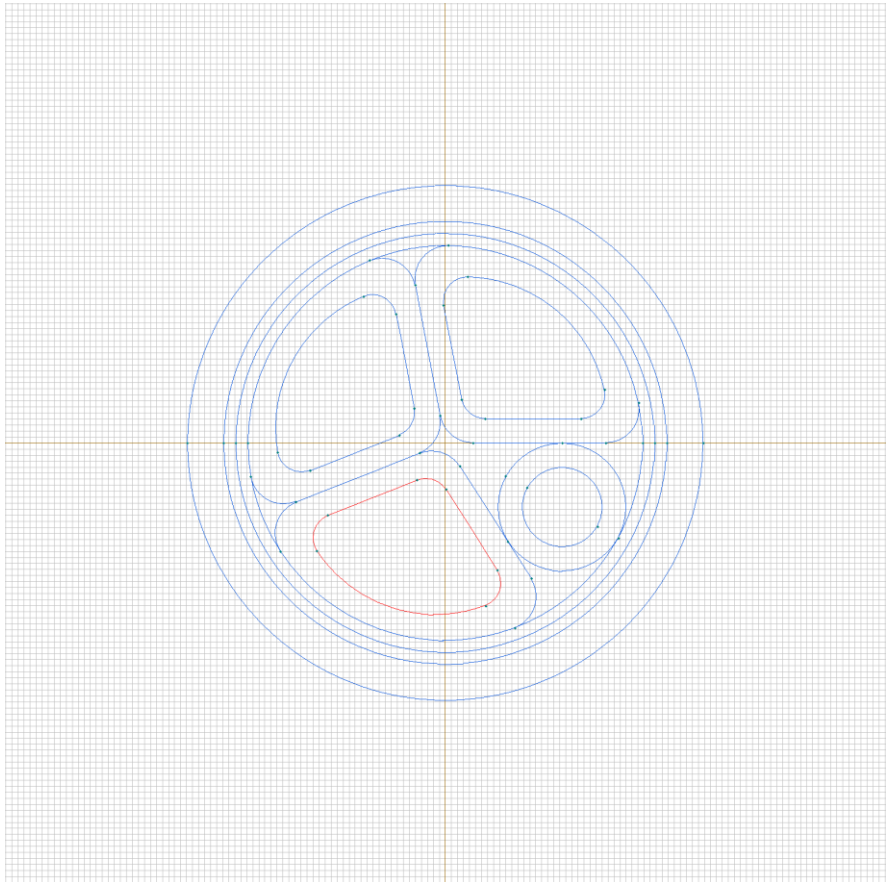
No material data (boundary conditions) are specified



Labelled objects: edge "Potential3"

There are (6) objects with this label

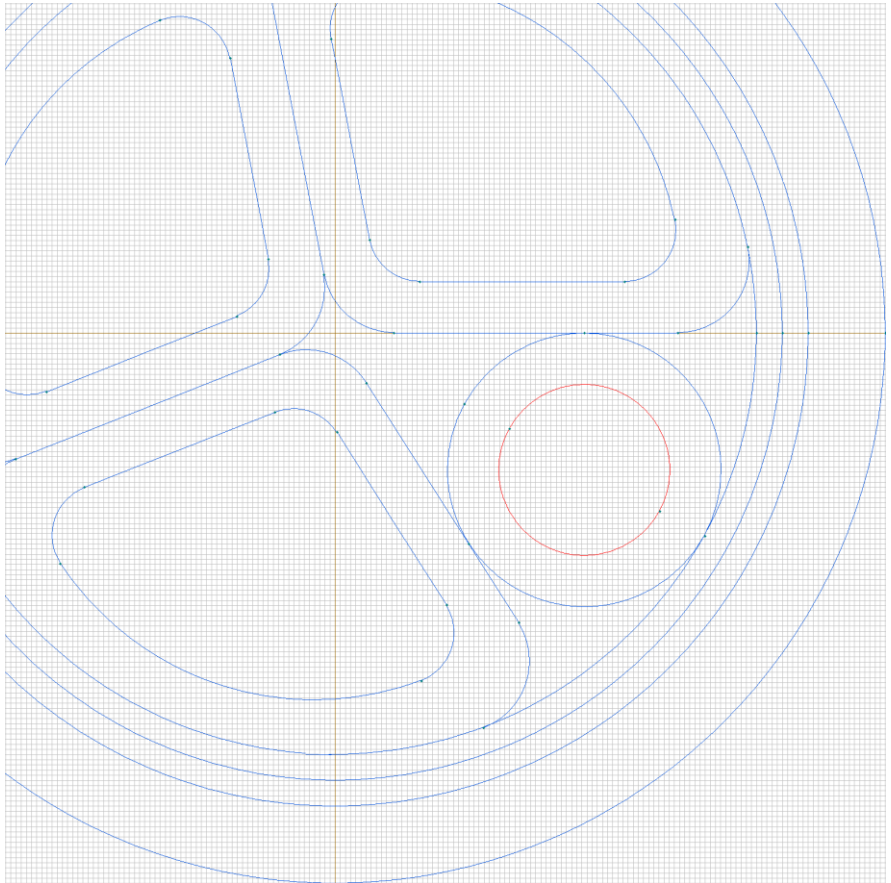
No material data (boundary conditions) are specified



Labelled objects: edge "Potential0"

There are (2) objects with this label

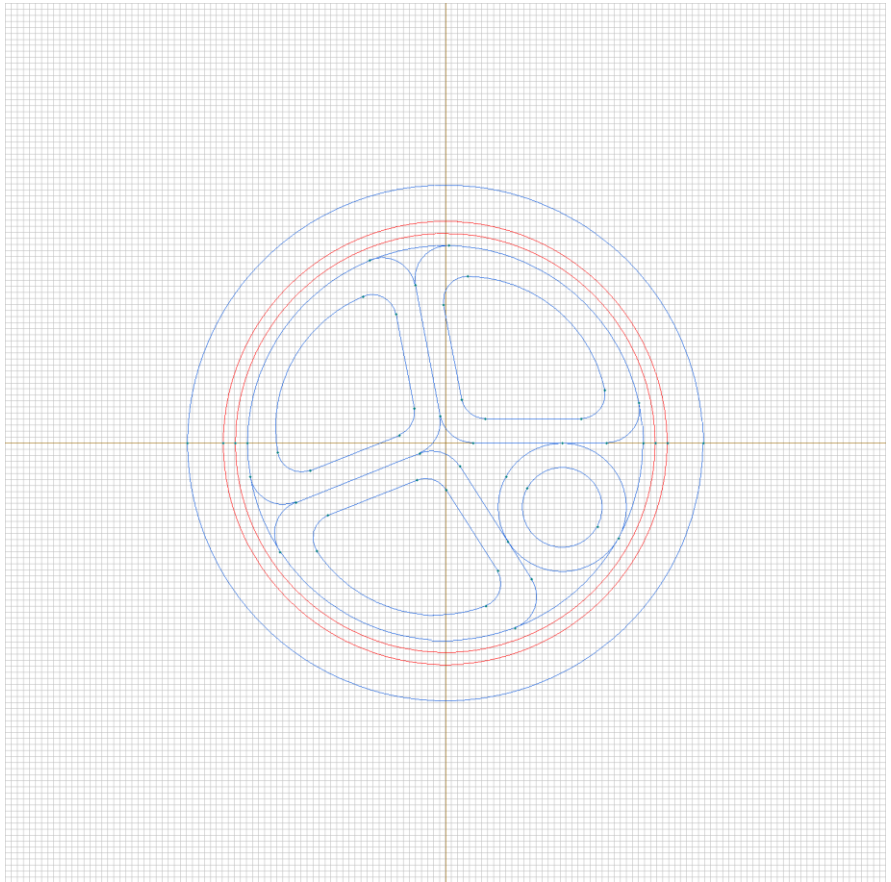
No material data (boundary conditions) are specified



Labelled objects: edge "Equipotential"

There are (4) objects with this label

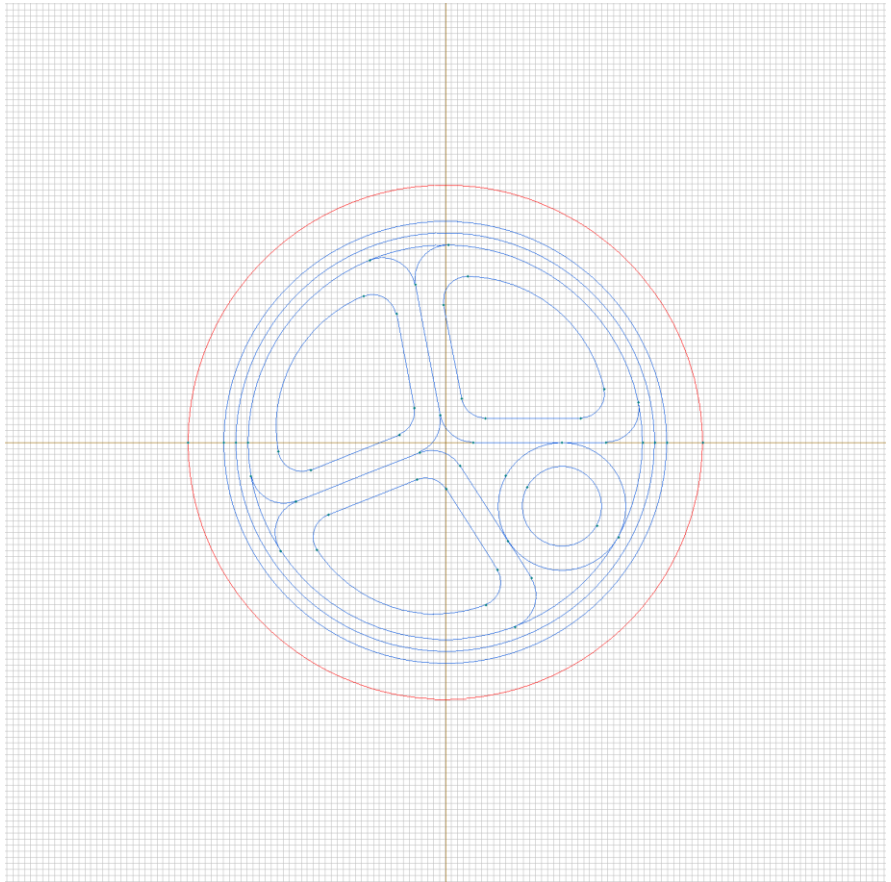
No material data (boundary conditions) are specified



Labelled objects: edge "Bound"

There are (2) objects with this label

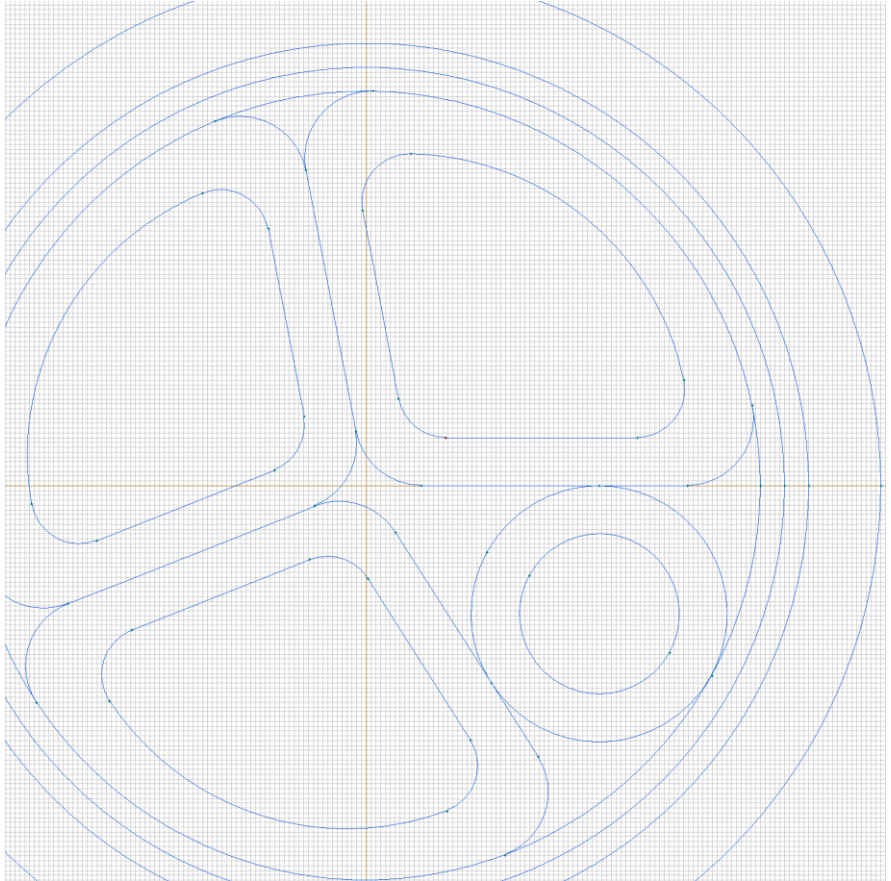
Magnetic potential: $A=0$ [Wb/m], phase 0 [deg]



Labelled objects: vertex "Charge1"

There are (1) objects with this label

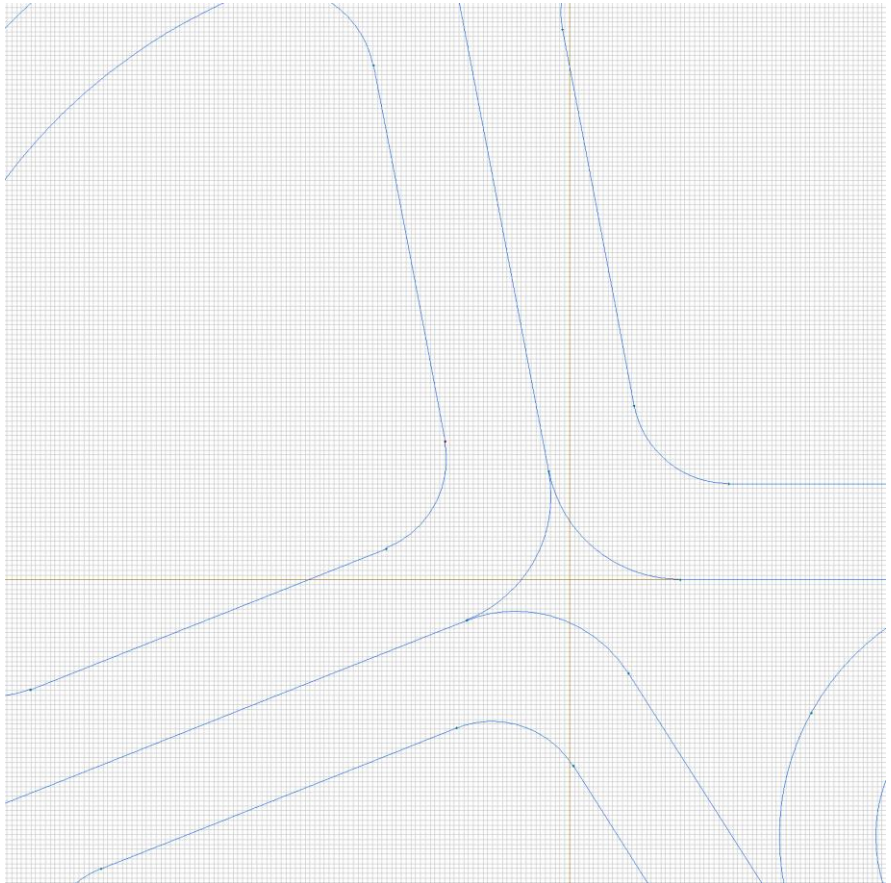
No material data (boundary conditions) are specified



Labelled objects: vertex "Charge2"

There are (1) objects with this label

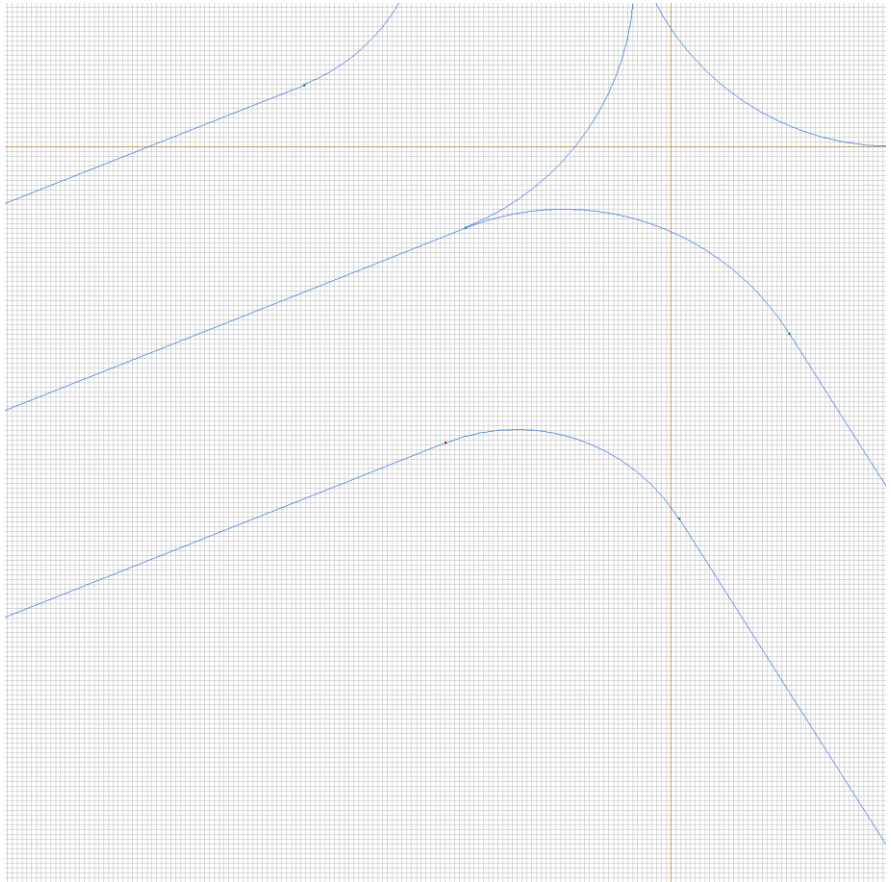
No material data (boundary conditions) are specified



Labelled objects: vertex "Charge3"

There are (1) objects with this label

No material data (boundary conditions) are specified



Labelled objects: vertex "Charge0"

There are (1) objects with this label

No material data (boundary conditions) are specified



[Problem info](#)

[Geometry model](#)

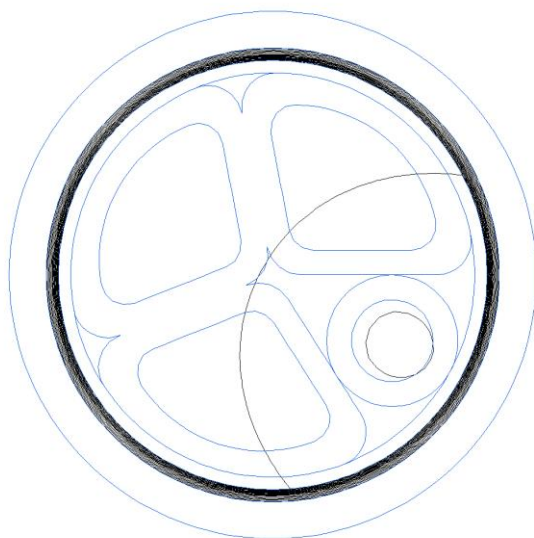
[Labelled Objects](#)

[Results](#)

[Nonlinear dependencies](#)

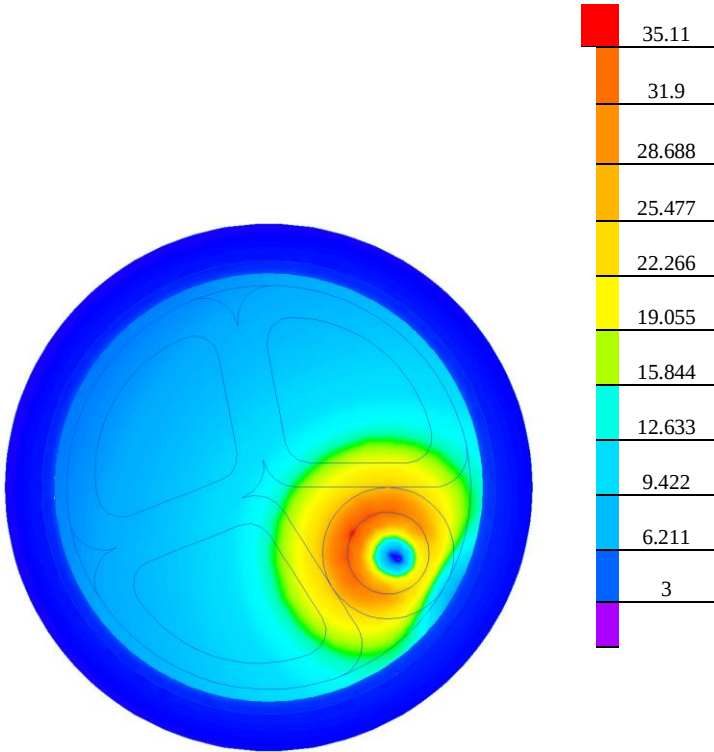
Results

Field lines



Results

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



Nonlinear dependencies

No non-linear dependencies are used in this problem data