

Problem info

Problem type: AC Magnetics , frequency: 50 Hz,

Geometry model class: Plane-Parallel

Problem database file names:

- Problem: *scott t-transformer.pbm*
- Geometry: *Transformer.mod*
- Material Data: *Transformer.dhe*
- Material Data 2 (library): *none*
- Electric circuit: *transformer.qcr*

Results taken from other problems:

- *none*

Geometry model

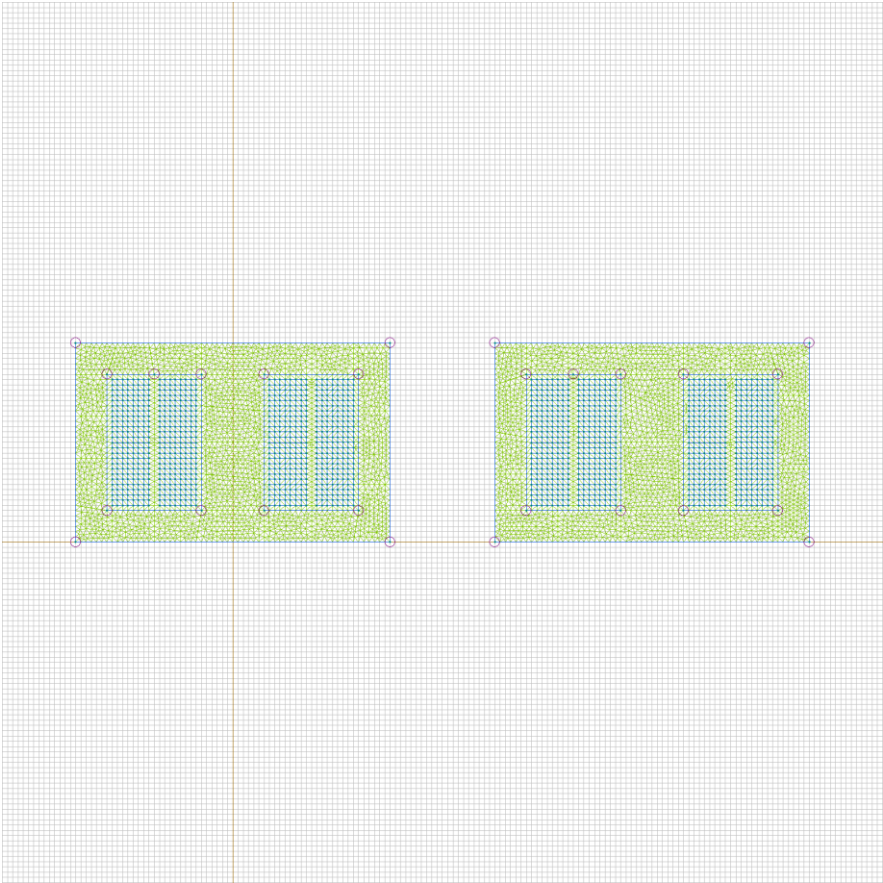


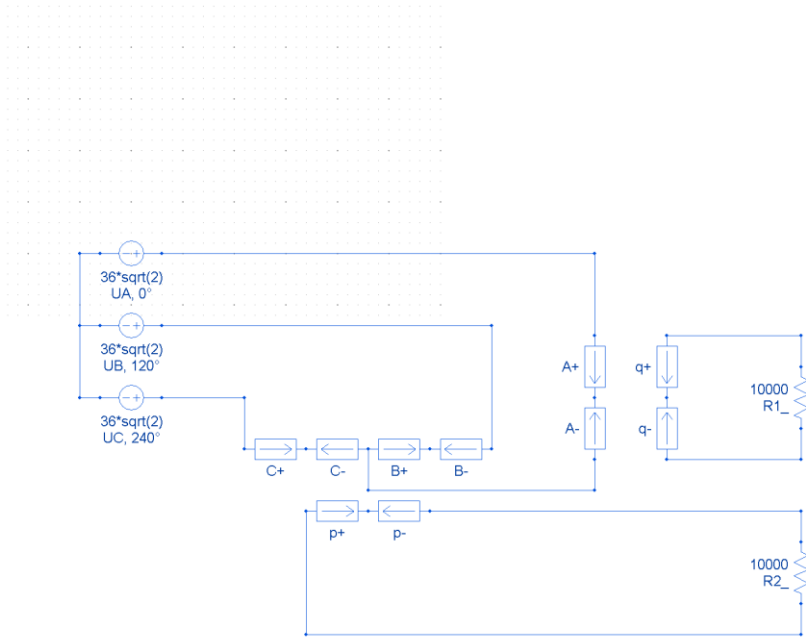
Table 1. Geometry model statistics

	With Label	Total
Blocks	12	1350
Edges	1	2962
Vertices	0	1626

Number of nodes: 5535.

Electric circuit

Coupled electric circuit



Circuit elements:

QuickField block 'C+'

QuickField block 'C-'

QuickField block 'p+'

QuickField block 'p-'

QuickField block 'A+'

QuickField block 'A-'

Voltage source UA, $0^\circ=36*\sqrt{2}$ [V] 0 [deg]

Voltage source UB, $120^\circ=36*\sqrt{2}$ [V] 120 [deg]

Voltage source UC, $240^\circ=36*\sqrt{2}$ [V] 240 [deg]

QuickField block 'q+'

QuickField block 'q-'

Resistor R2_=10000 [Ohm]

Resistor R1_=10000 [Ohm]

QuickField block 'B+'

QuickField block 'B-'

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:

- [A+](#)
- [q-](#)
- [C+](#)
- [B+](#)
- [q+](#)
- [p-](#)
- [insulation](#)
- [A-](#)
- [p+](#)
- [C-](#)
- [B-](#)
- [core](#)
-

Edges:

- [boundary](#)
-

Vertices:

Detailed information about each label is listed below.

Labelled objects: block "A+"

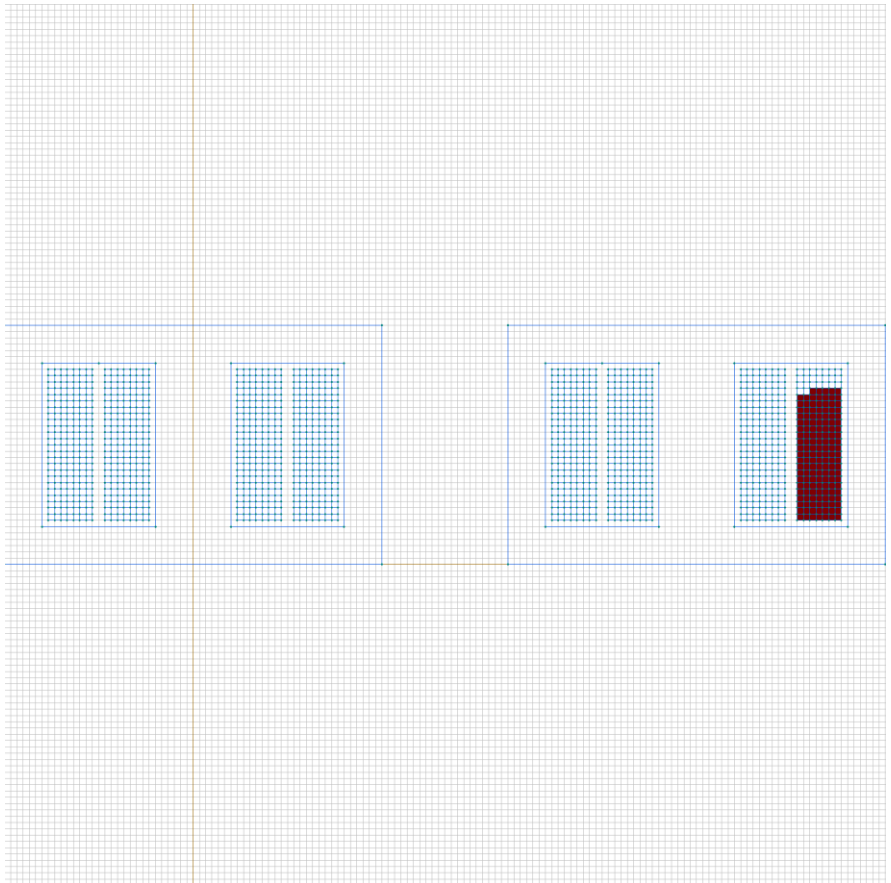
There are (145) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "q-"

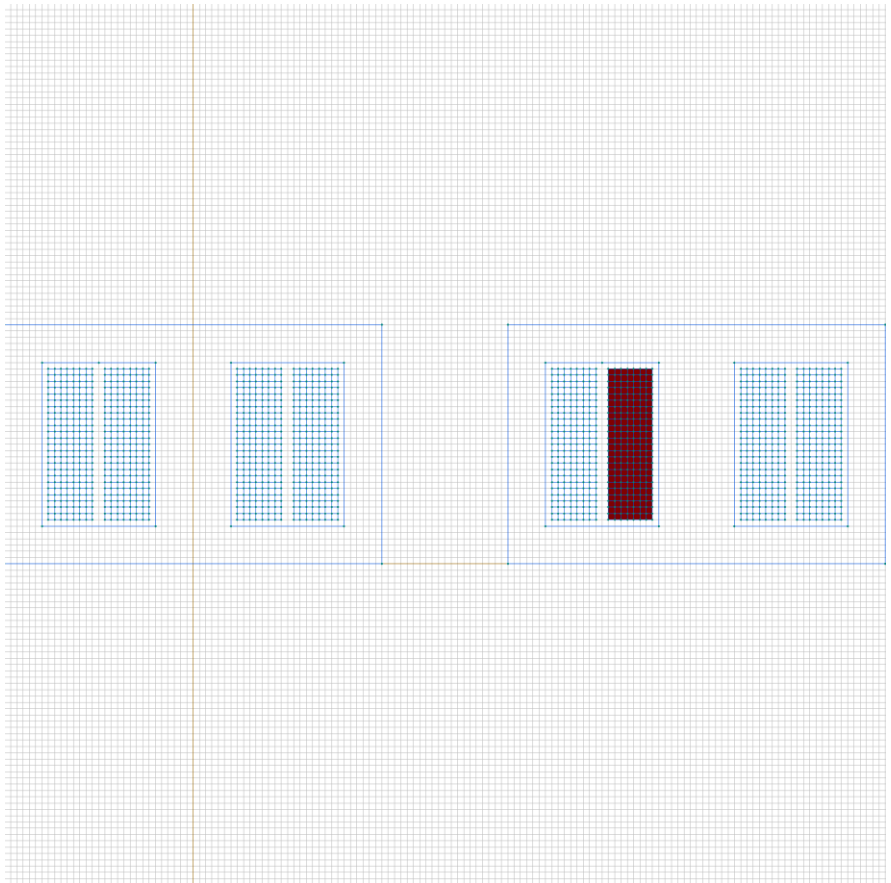
There are (168) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "C+"

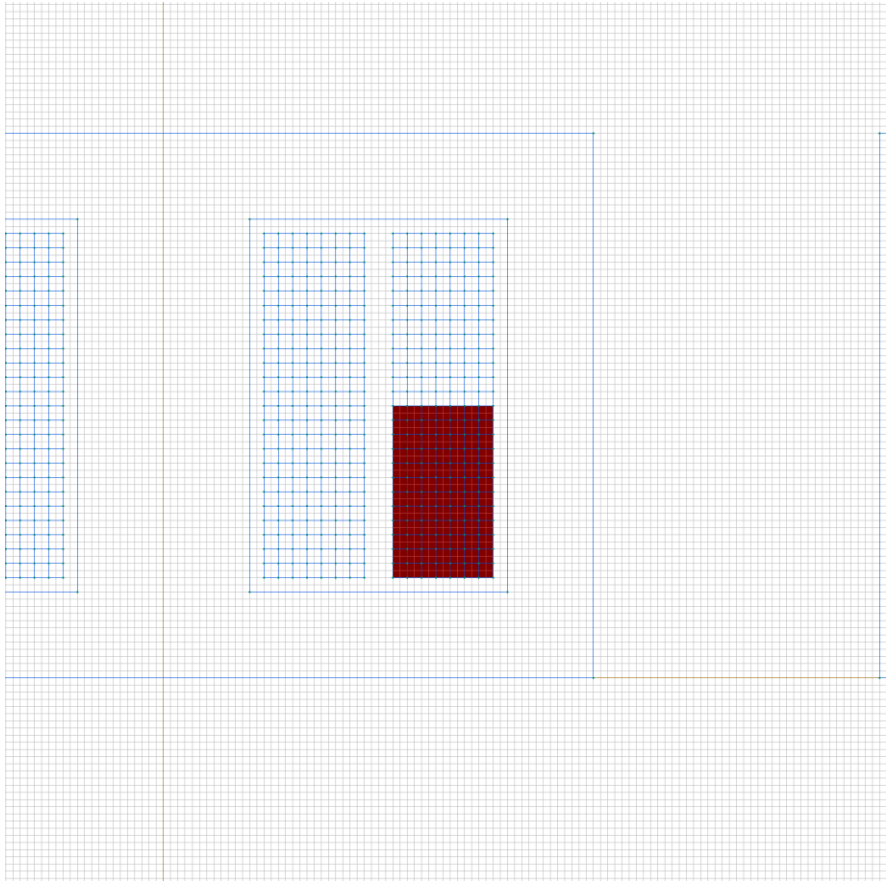
There are (84) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "B+"

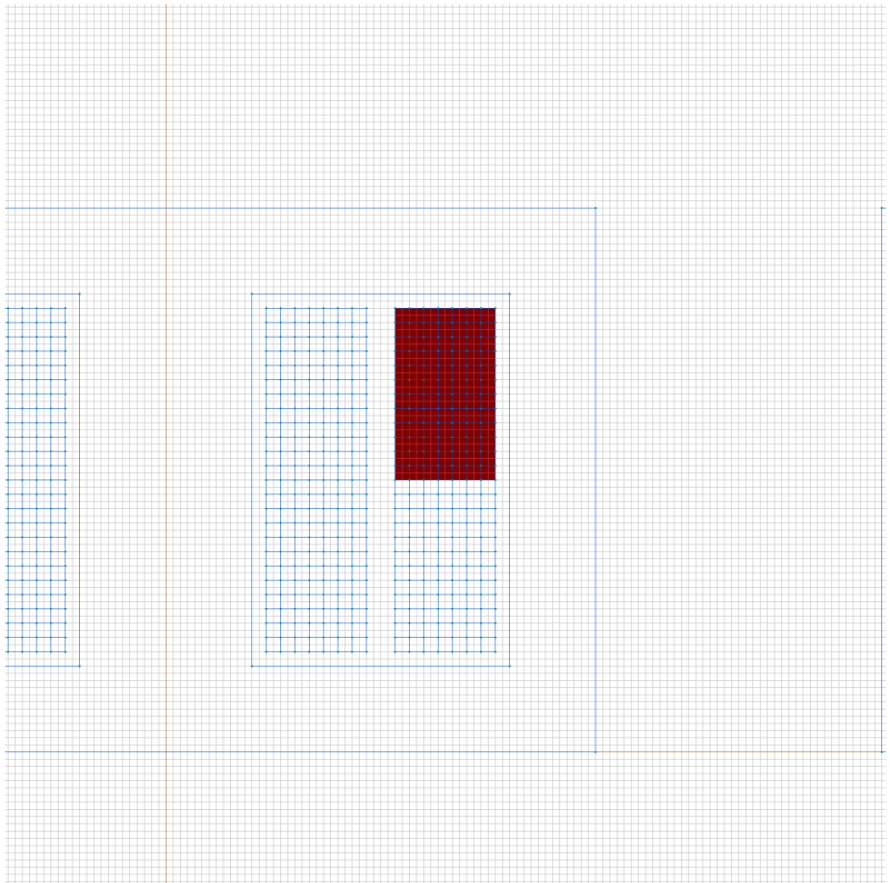
There are (84) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "q+"

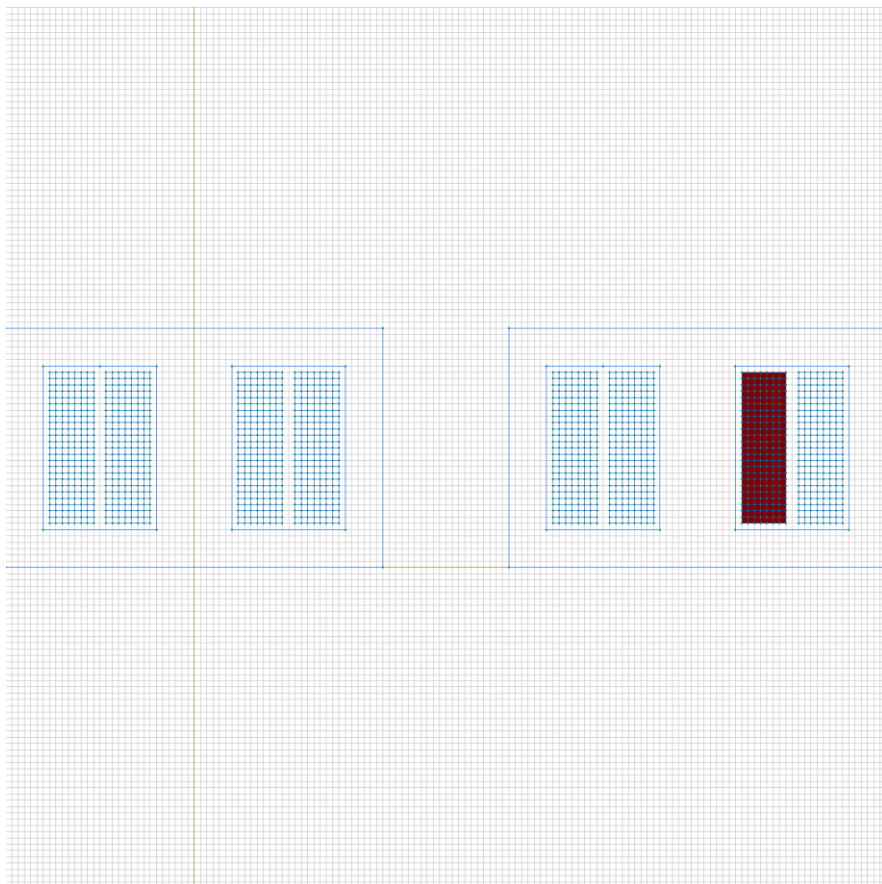
There are (168) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "p-"

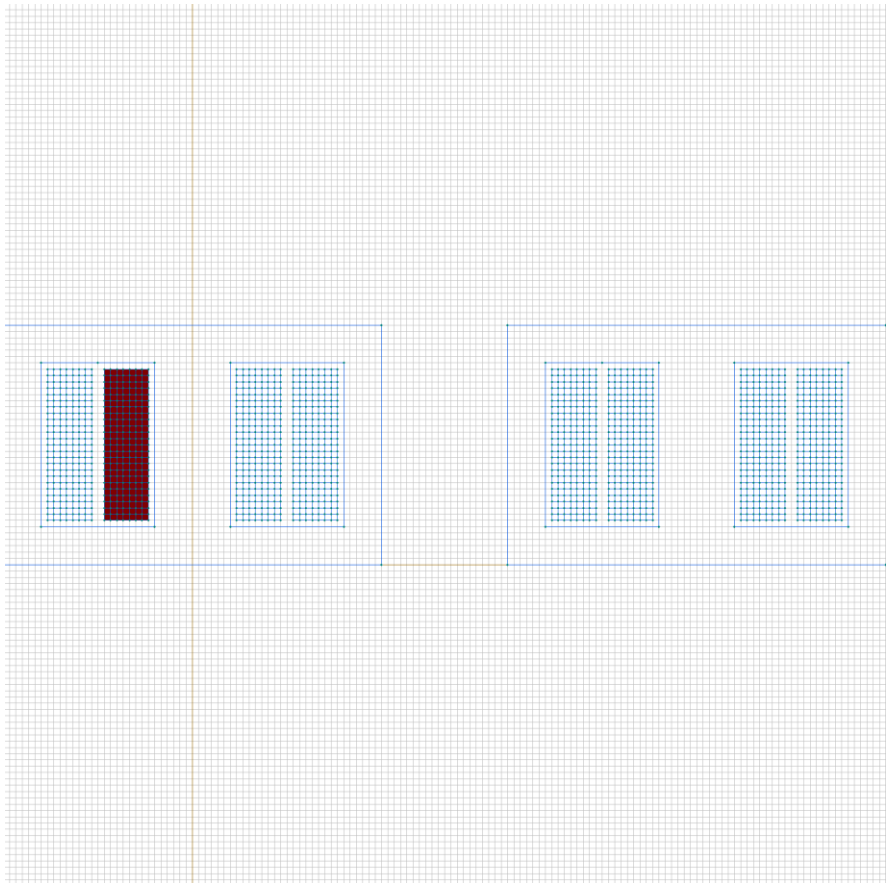
There are (168) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "insulation"

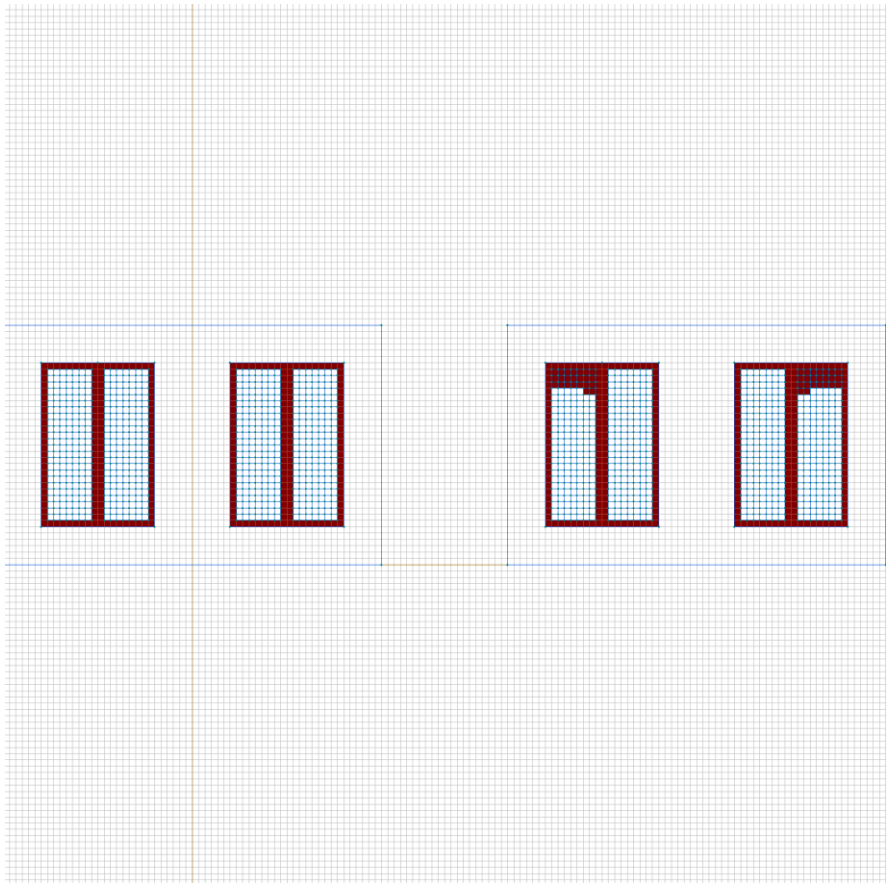
There are (50) objects with this label

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-"

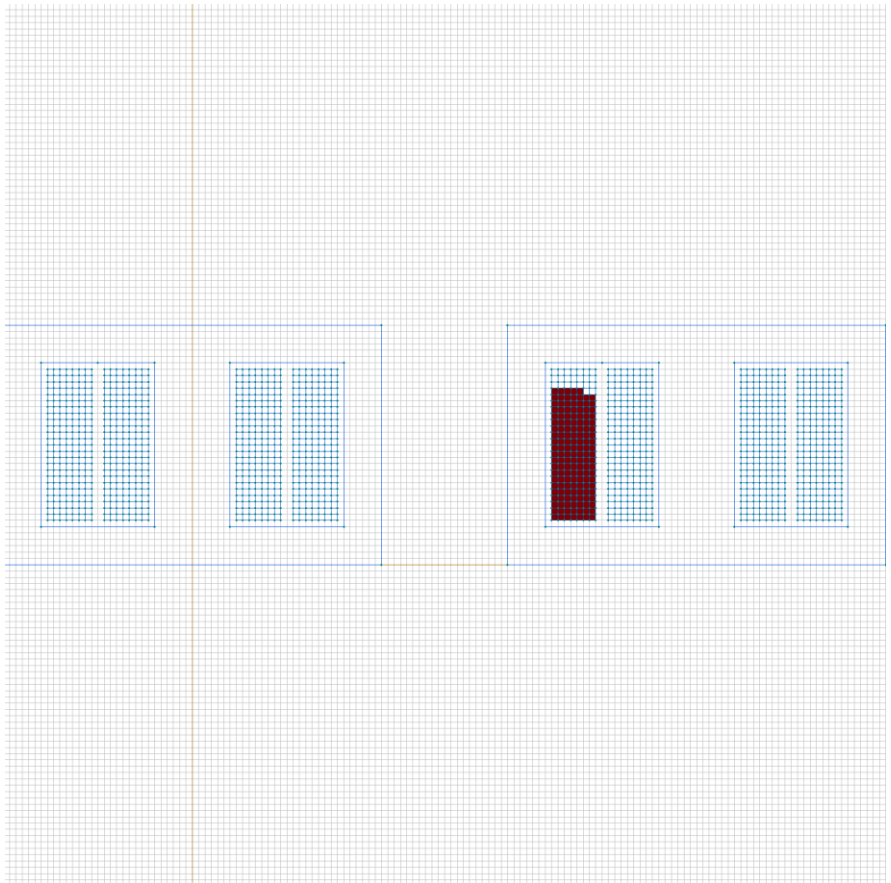
There are (145) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "p+"

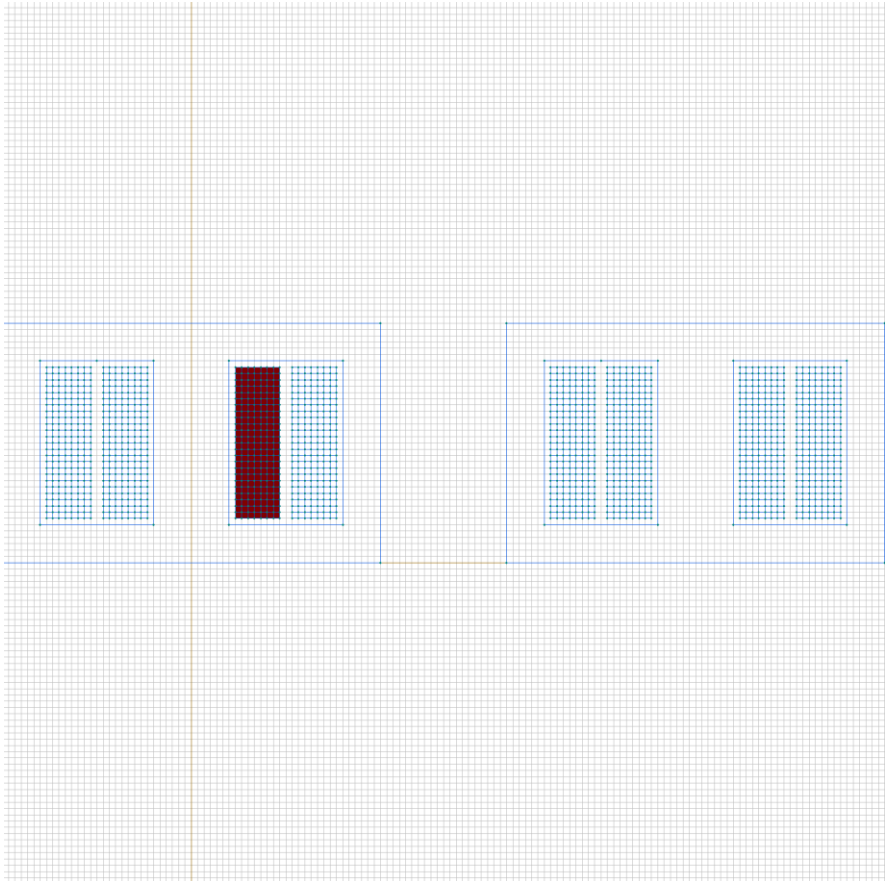
There are (168) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "C-"

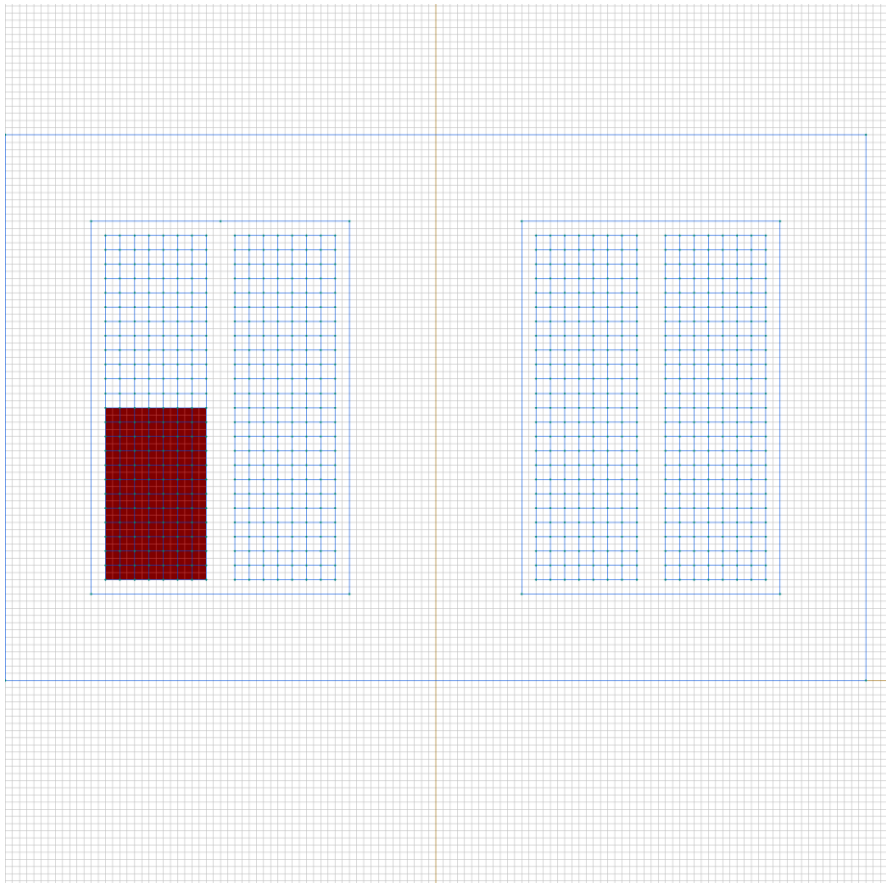
There are (84) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "B-"

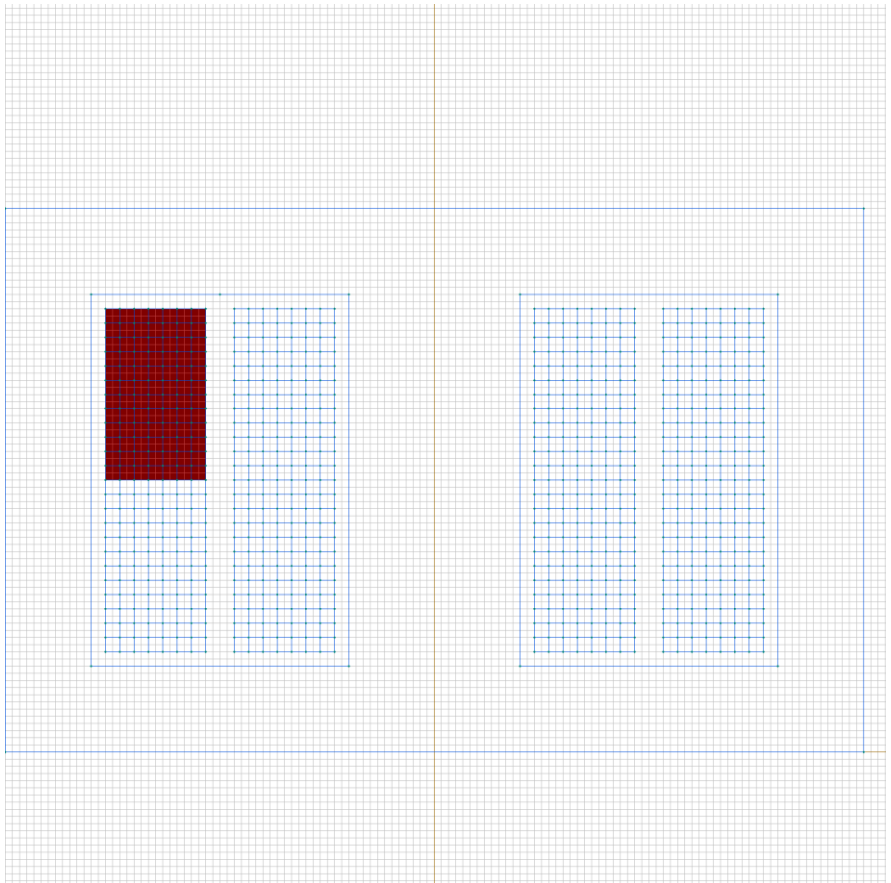
There are (84) objects with this label

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

Electric conductivity: $\sigma=56000000$ [S/m]

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

Conductor's connection: in series



Labelled objects: block "core"

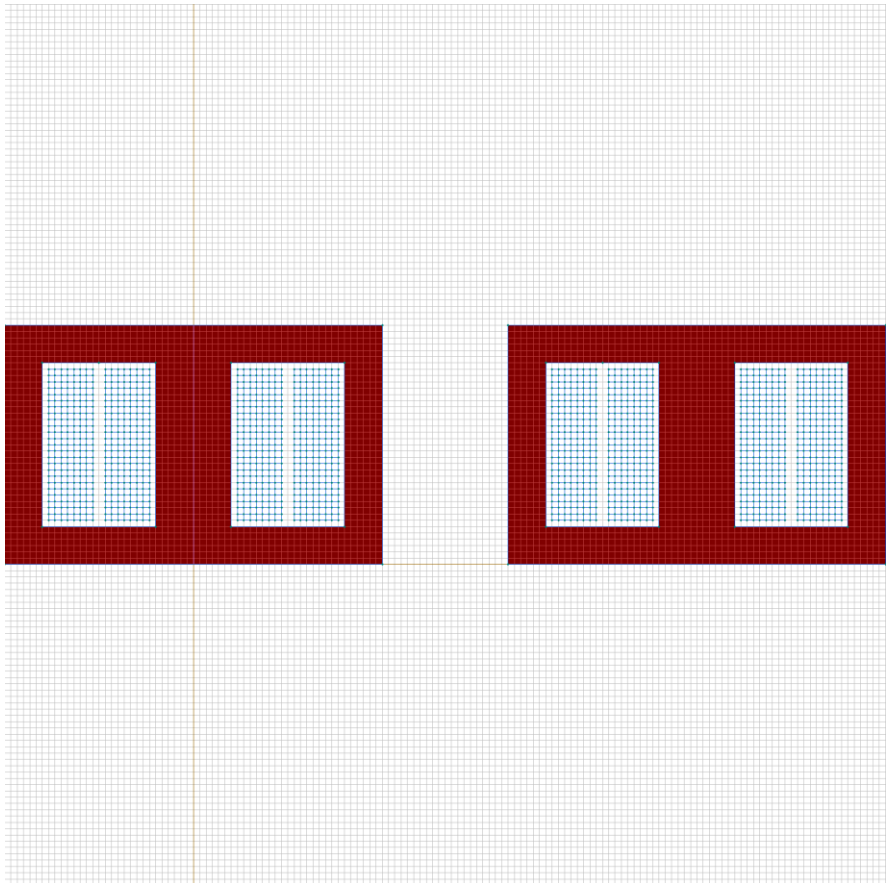
There are (2) objects with this label

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

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

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

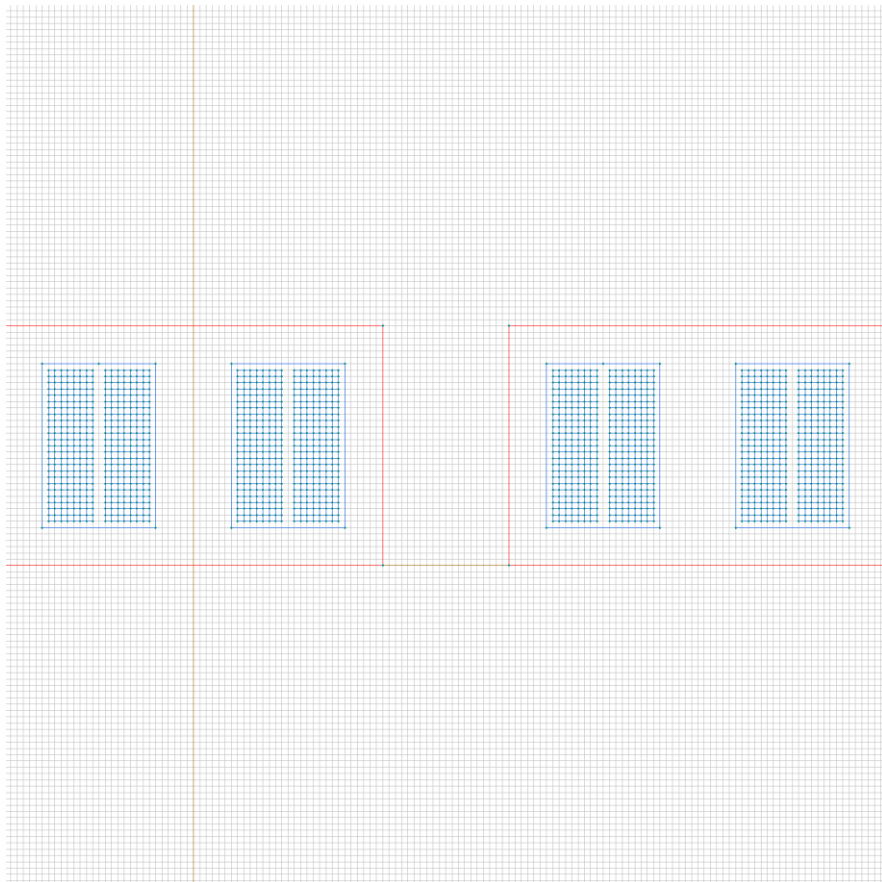
Conductor's connection: in parallel



Labelled objects: edge "boundary"

There are (8) objects with this label

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



[Problem info](#)

[Geometry model](#)

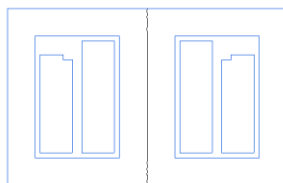
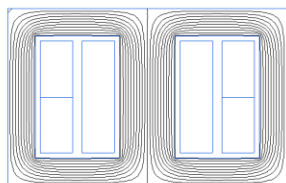
[Labelled Objects](#)

[Results](#)

[Nonlinear dependencies](#)

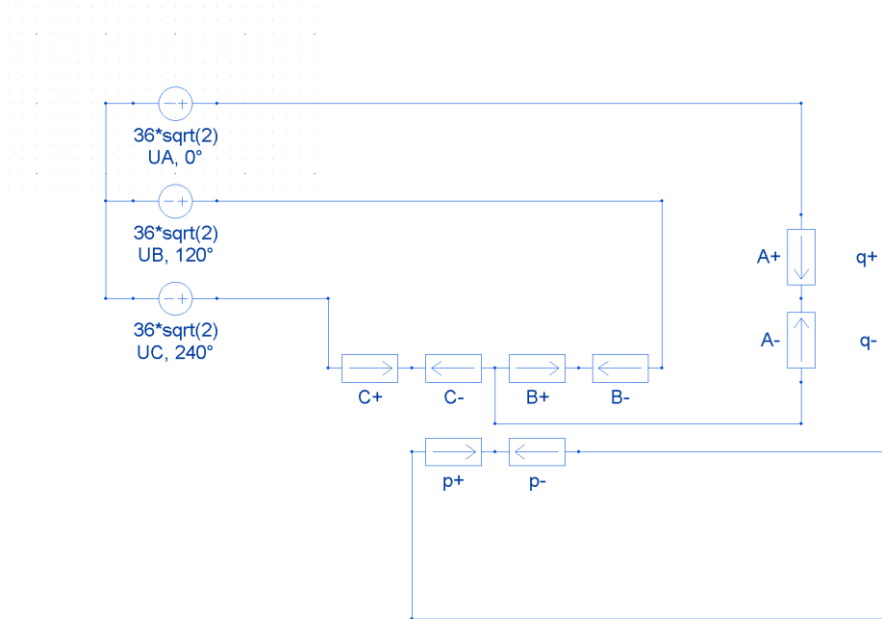
Results

Field lines



Results

Electric circuit currents



Circuit elements:

C+. I=1.9421 [A], phase=150.48 [deg]

C-. I=1.9419 [A], phase=-29.544 [deg]

p+. I=0.008838 [A], phase=90.12 [deg]

p-. I=0.008801 [A], phase=-90.55 [deg]

A+. I=1.9479 [A], phase=-89.29 [deg]

A-. I=1.9479 [A], phase=90.69 [deg]

UA, 0°. I=1.9479 [A], phase=-89.29 [deg]

UB, 120°. I=1.9383 [A], phase=30.746 [deg]

UC, 240°. I=1.9421 [A], phase=150.48 [deg]

q+. I=0.008645 [A], phase=-179.24 [deg]

q-. I=0.008847 [A], phase=0.4004 [deg]

R2_. I=0.008798 [A], phase=-89.74 [deg]

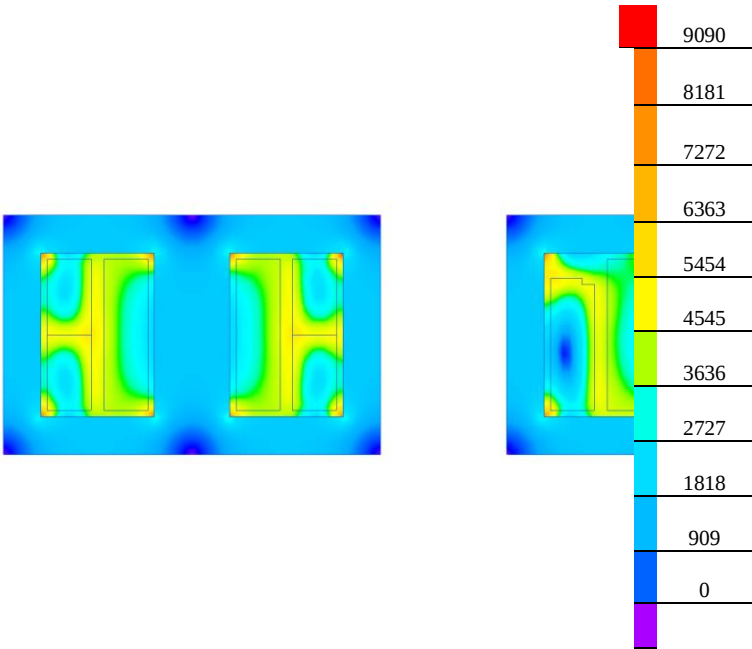
R1_. I=0.008818 [A], phase=-179.61 [deg]

B+. I=1.9382 [A], phase=-149.28 [deg]

B-. I=1.9383 [A], phase=30.746 [deg]

Results

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



Nonlinear dependencies

No non-linear dependencies are used in this problem data