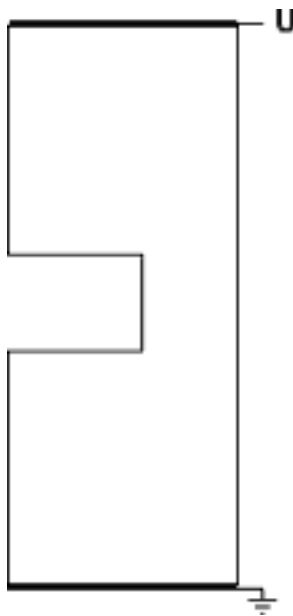


QuickField simulation report

Current flow in conductor with various cross-sections

Determination of the current distribution within the conductor



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/conductor_current_flow.htm

Problem info

Problem type: DC Conduction

Geometry model class: Plane-Parallel

Problem database file names:

- Problem: *CURFLOW.PBM*
- Geometry: *Curflow.mod*
- Material Data: *Curflow.dcf*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

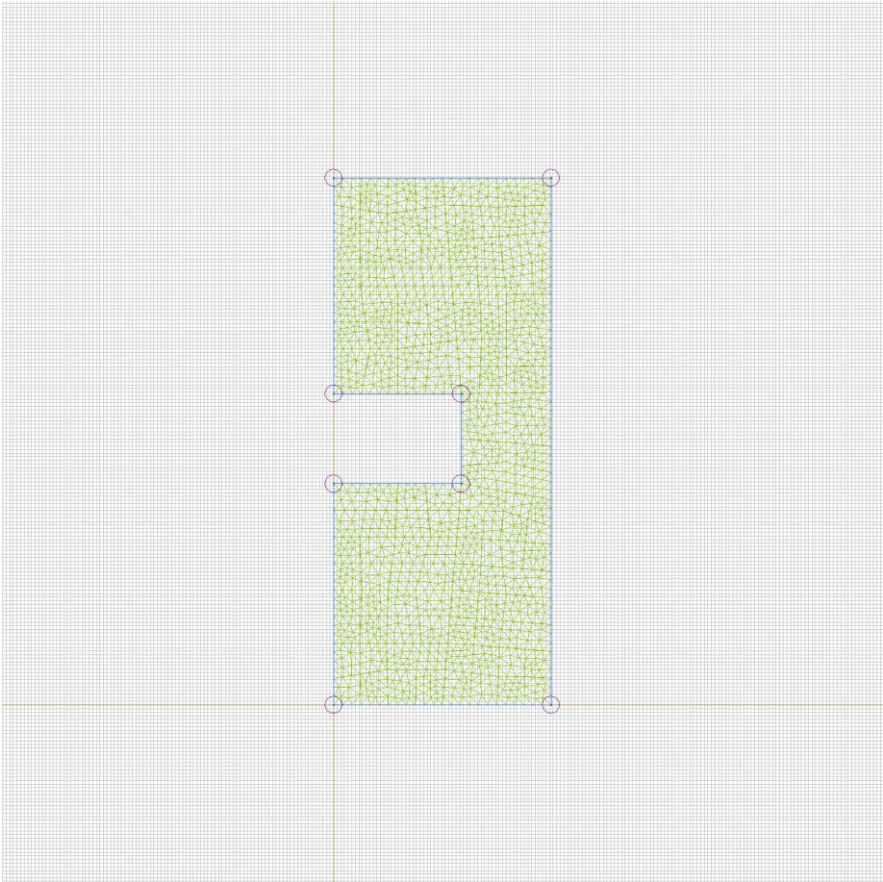


Table 1. Geometry model statistics

| | With Label | Total |
|----------|------------|-------|
| Blocks | 1 | 1 |
| Edges | 3 | 8 |
| Vertices | 0 | 8 |

Number of nodes: 1556.

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:

- [metal](#)
-

Edges:

- [bok_middle](#)
- [bok_10V](#)
- [bok_0V](#)
-

Vertices:

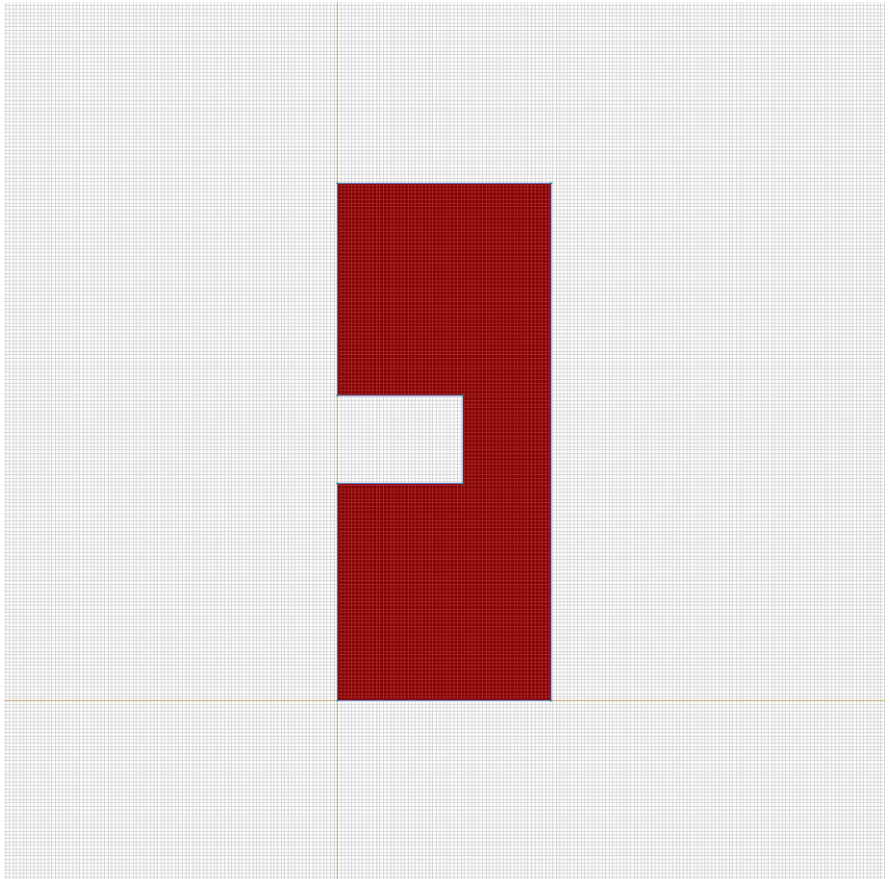
Detailed information about each label is listed below.

Labelled objects: block "metal"

There are (1) objects with this label

Electrical conductivity: $\sigma_x=102.27$ S/m,
 $\sigma_y=102.27$ S/m

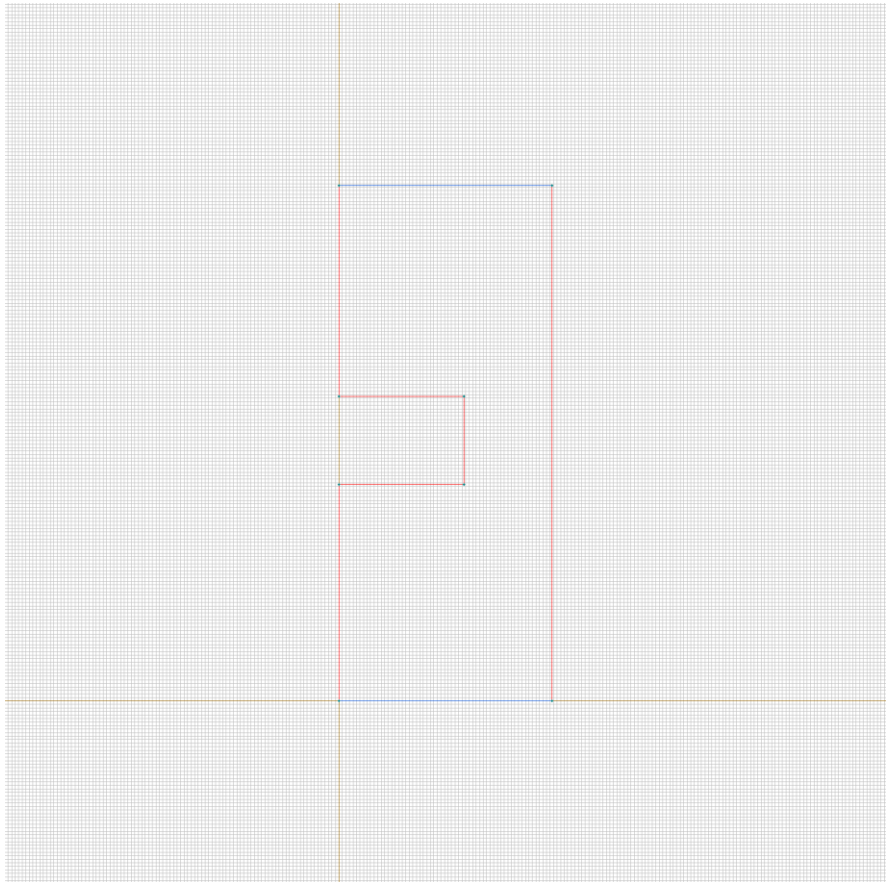
Reference temperature: $T=0$ K



Labelled objects: edge "bok_middle"

There are (6) objects with this label

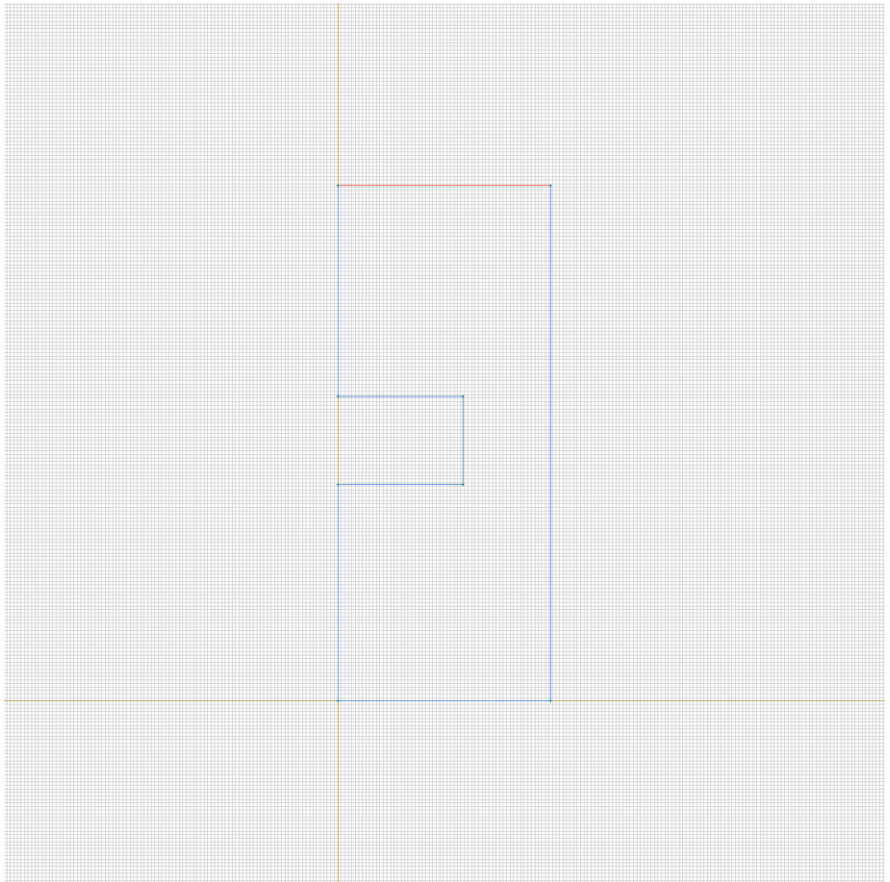
Normal current density: $j_n=0$ A/m²



Labelled objects: edge "bok_10V"

There are (1) objects with this label

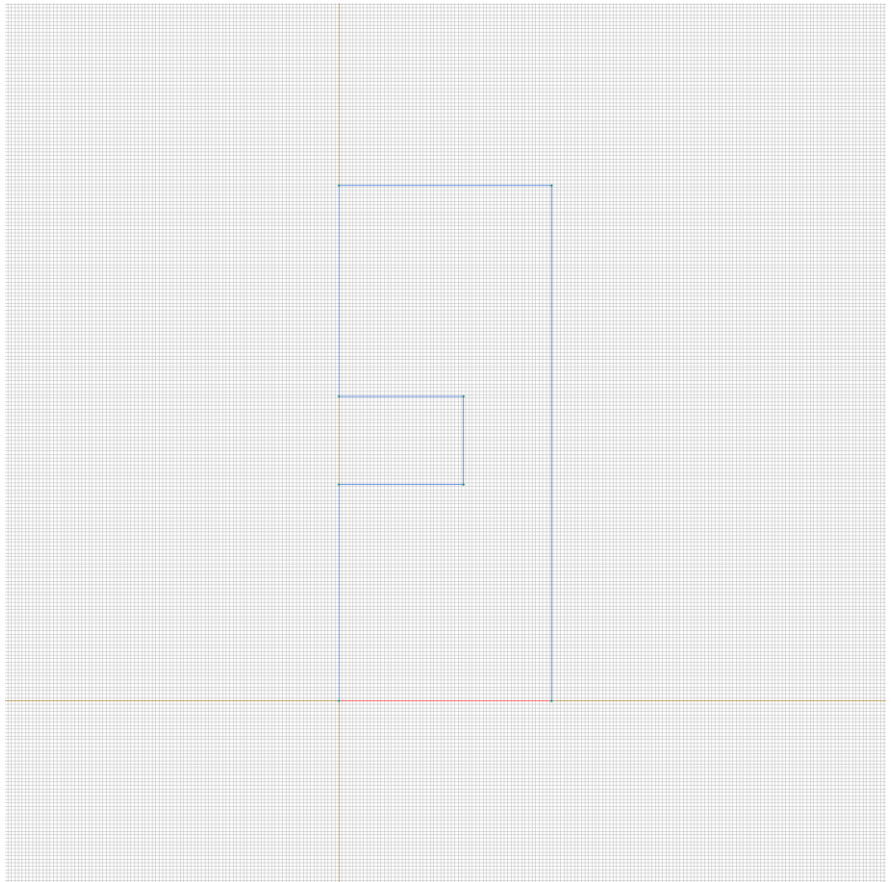
Voltage: $U=10\text{ V}$



Labelled objects: edge "bok_0V"

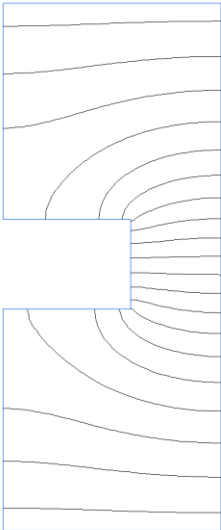
There are (1) objects with this label

Voltage: $U=0$ V



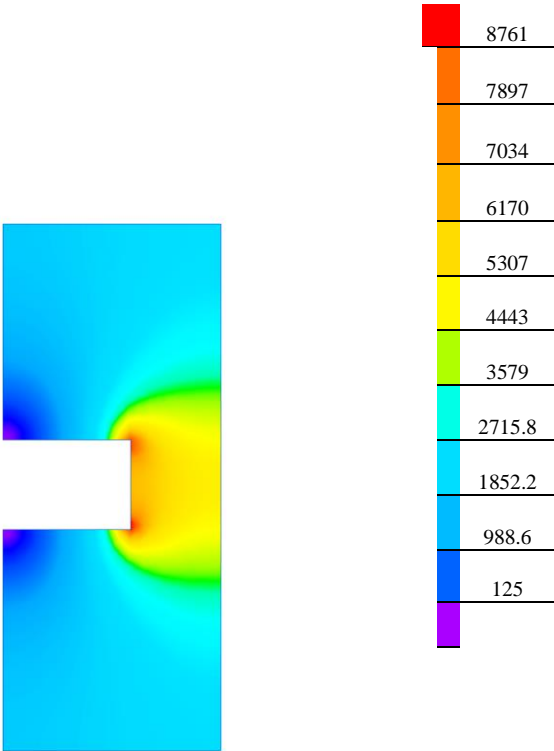
Results

Field lines



Results

Color map of Current density $|j|$ [A/m²]



Nonlinear dependencies

No non-linear dependencies are used in this problem data