

Problem info

Problem type: Steady-State Heat Transfer

Geometry model class: Plane-Parallel

Problem database file names:

- Problem: *shallow_foundation.pbm*
- Geometry: *Shallow_foundation.mod*
- Material Data: *Shallow_foundation.dht*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

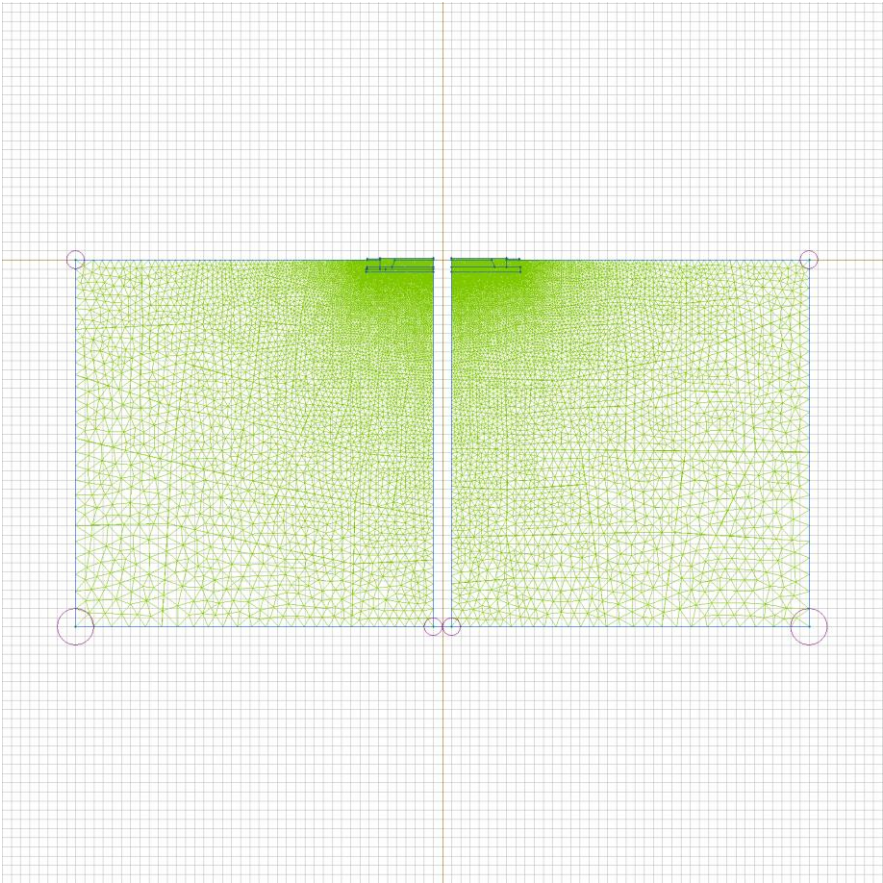


Table 1. Geometry model statistics

	With Label	Total
Blocks	4	11
Edges	4	49
Vertices	0	39

Number of nodes: 18577.

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:

- [ground](#)
- [drainage](#)
- [foundation](#)
- [foam plastic](#)
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Edges:

- [-20](#)
- [20](#)
- [no flux](#)
- [symmetry](#)
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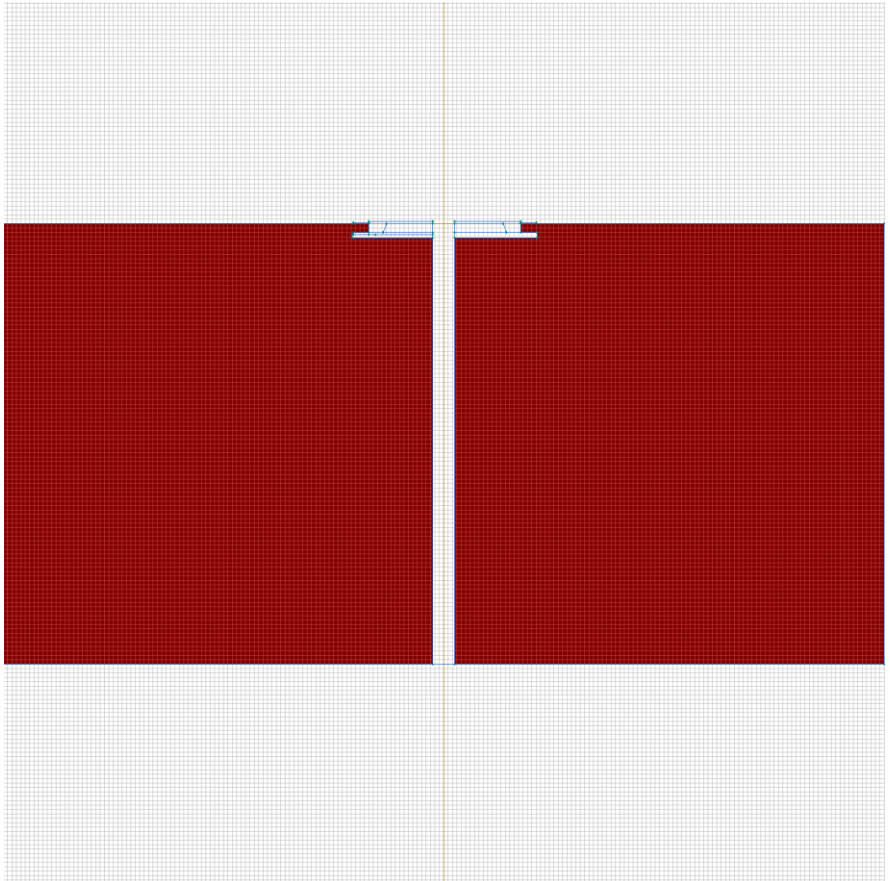
Vertices:

Detailed information about each label is listed below.

Labelled objects: block "ground"

There are (2) objects with this label

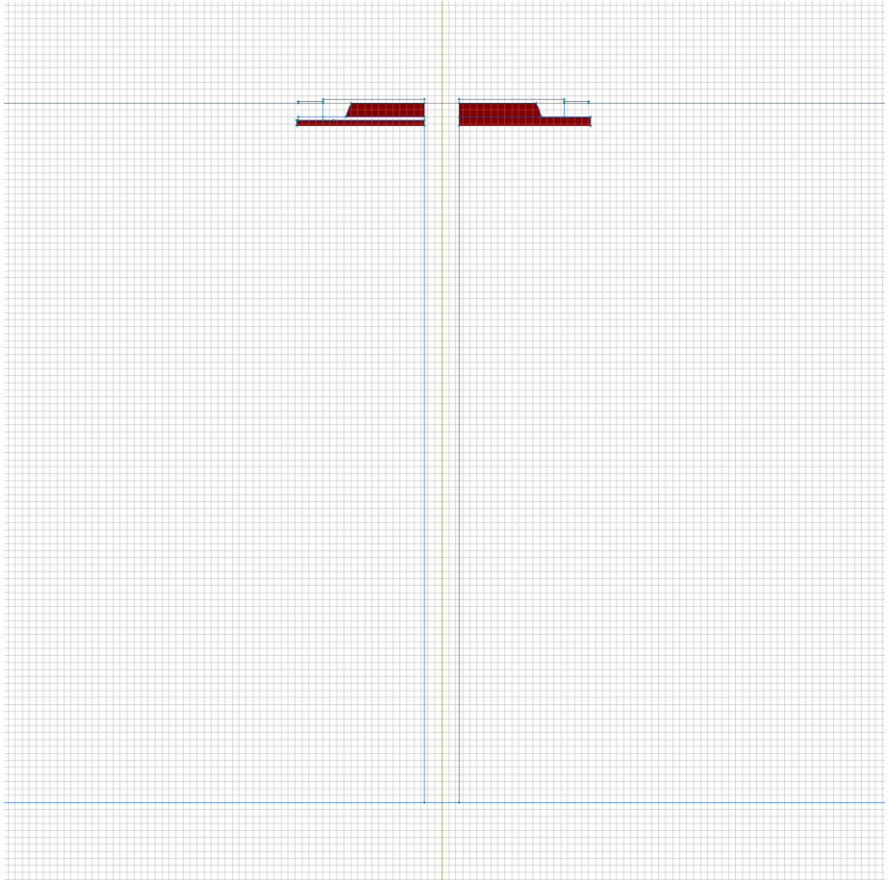
Thermal conductivity: $\lambda_x=0.89$ [W/(K*m)],
 $\lambda_y=0.89$ [W/(K*m)]



Labelled objects: block "drainage"

There are (4) objects with this label

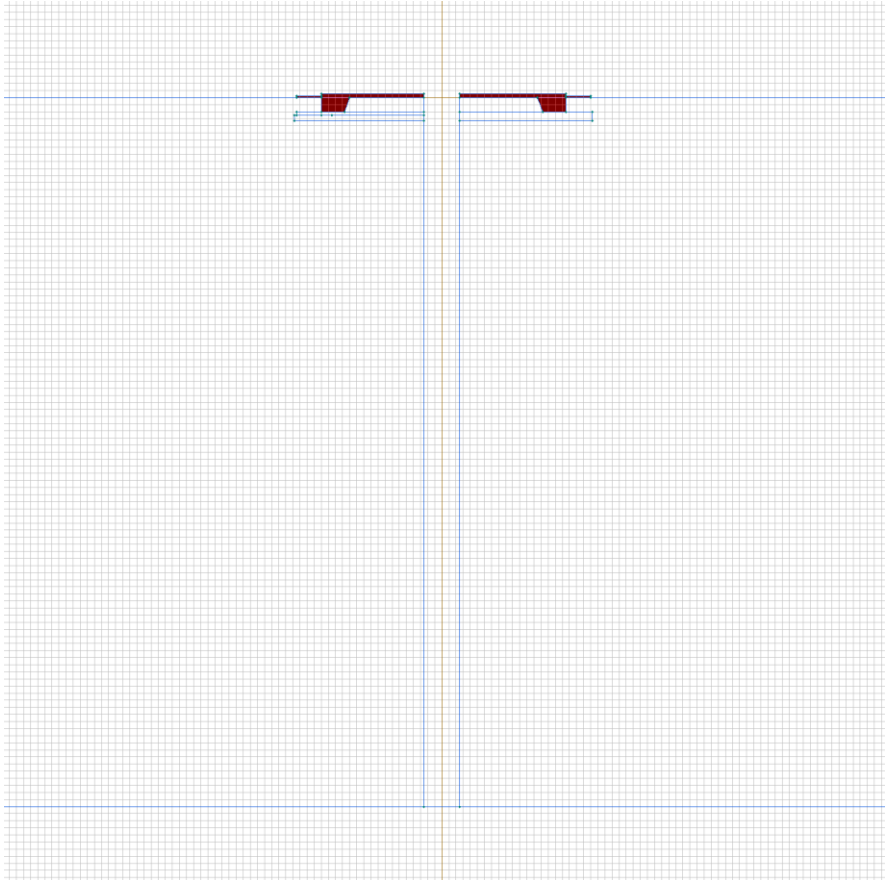
Thermal conductivity: $\lambda_x=0.36$ [W/(K*m)],
 $\lambda_y=0.36$ [W/(K*m)]



Labelled objects: block "foundation"

There are (4) objects with this label

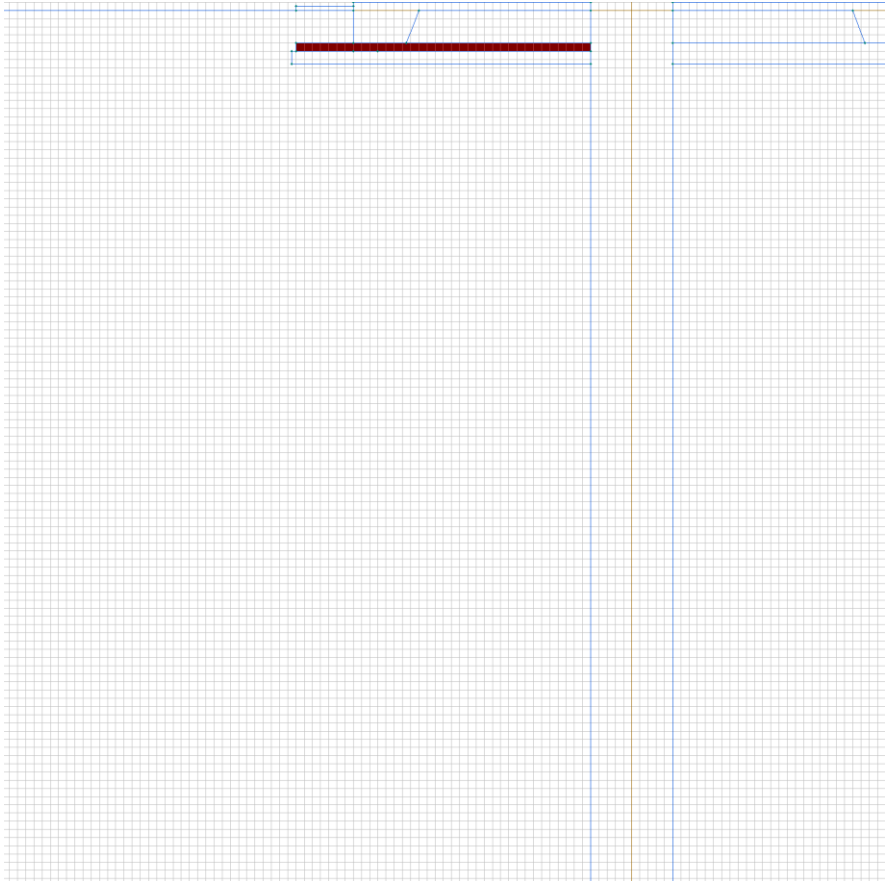
Thermal conductivity: $\lambda_x=1$ [W/(K*m)],
 $\lambda_y=1$ [W/(K*m)]



Labelled objects: block "foam plastic"

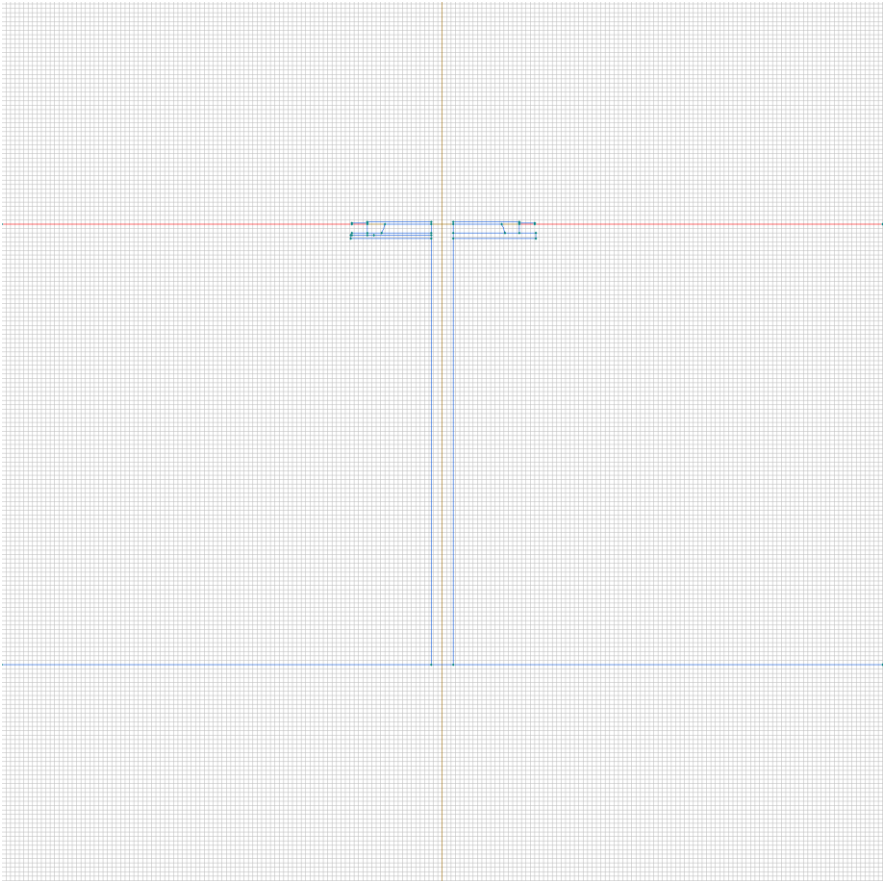
There are (1) objects with this label

Thermal conductivity: $\lambda_x=0.031$ [W/(K*m)],
 $\lambda_y=0.031$ [W/(K*m)]

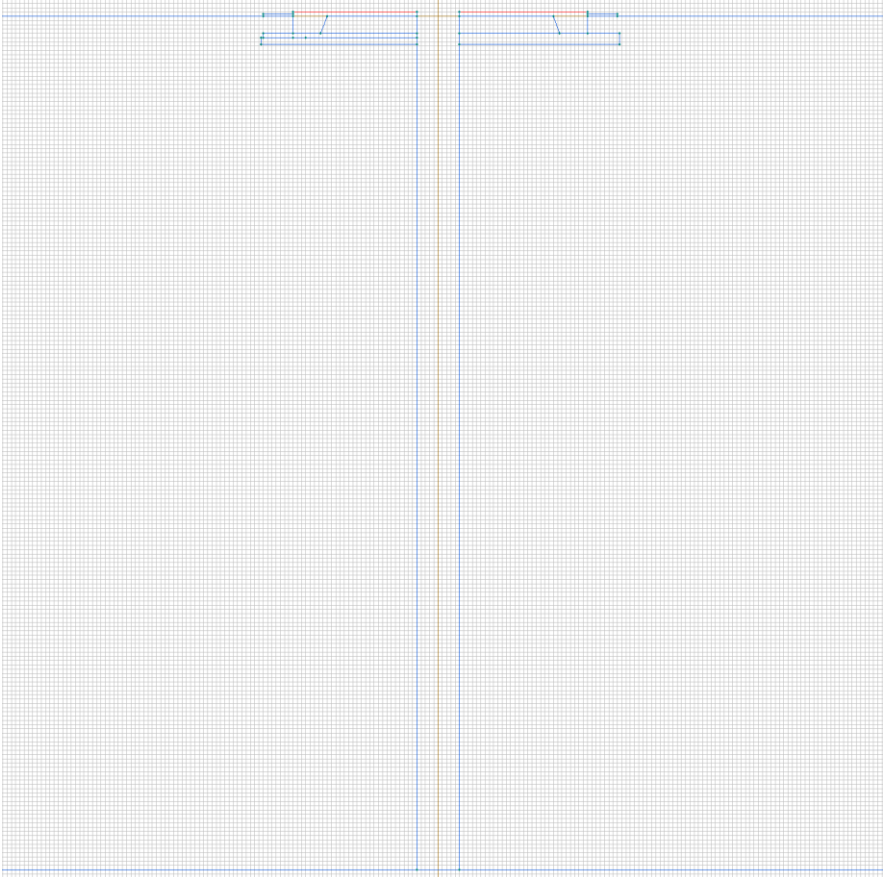


Labelled objects: edge "-20"

There are (4) objects with this label



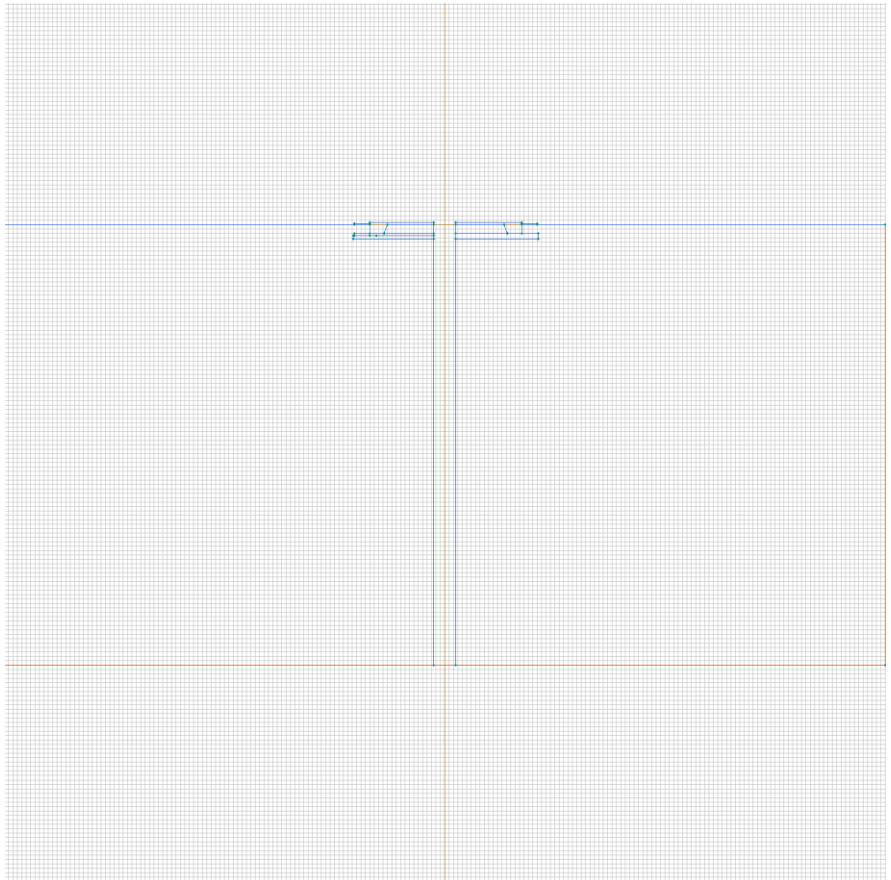
Labelled objects: edge "20"
There are (2) objects with this label



Labelled objects: edge "no flux"

There are (5) objects with this label

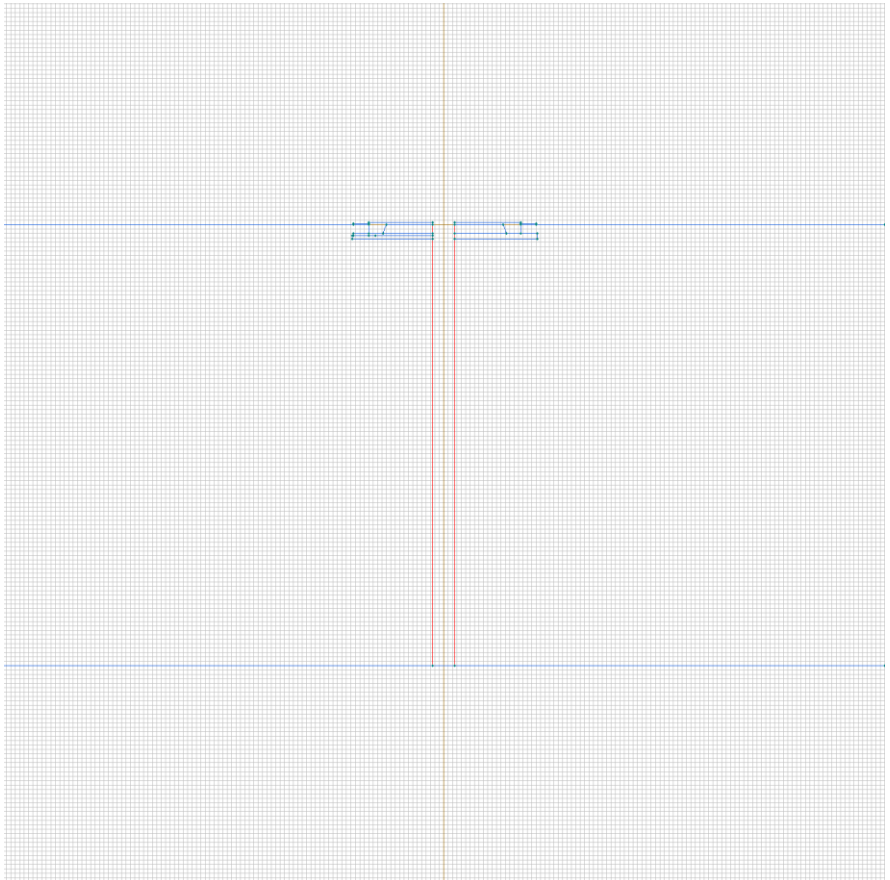
Heat flux: $F=0$ [W/m²]



Labelled objects: edge "symmetry"

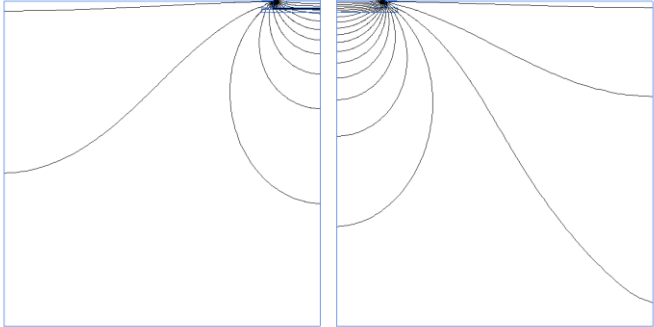
There are (9) objects with this label

Heat flux: $F=0$ [W/m²]



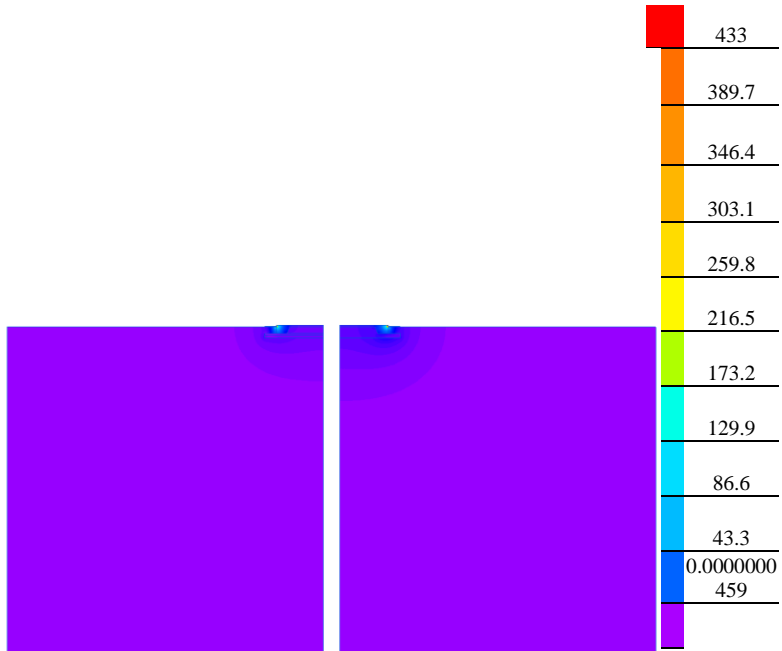
Results

Field lines



Results

Color map of Heat flux |F| [W/m2]



Nonlinear dependencies

No non-linear dependencies are used in this problem data