Problem info

Problem type: Steady-State Heat Transfer
Geometry model class: Axisymmetric
Problem database file names:

- Problem: *sphere_convection.pbm*
- Geometry: *Sphere_convection_model.mod*
- Material Data: *Sphere_convection_data.dht*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

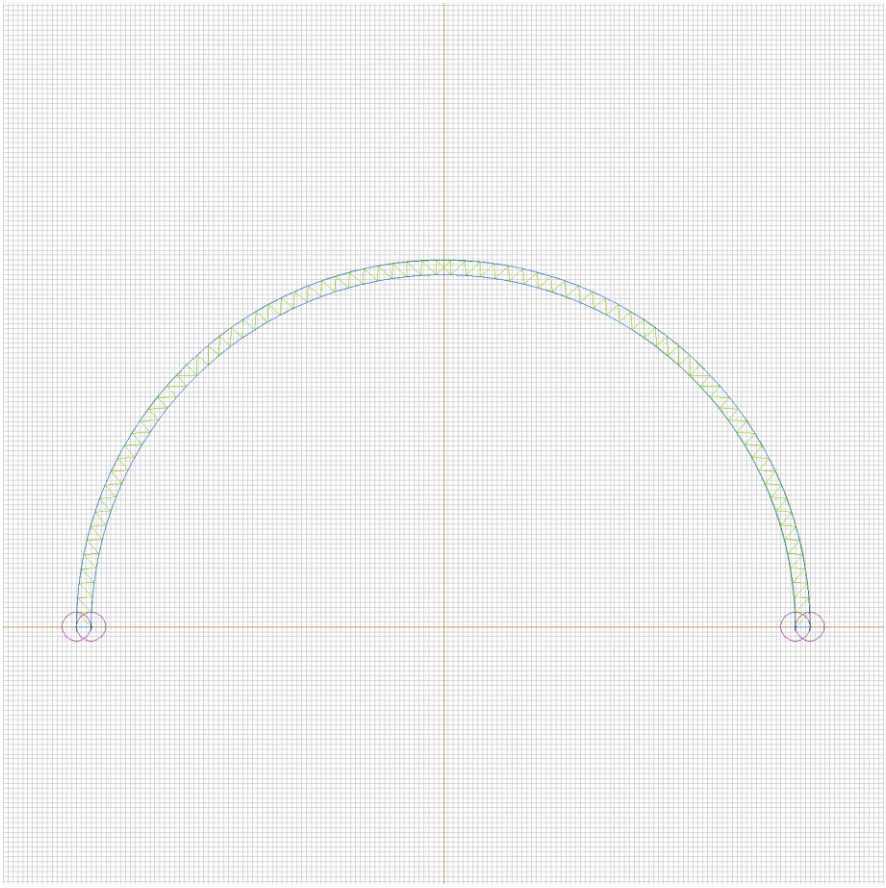


Table 1. Geometry model statistics

	With Label	Total
Blocks	1	1
Edges	2	4
Vertices	0	4

Number of nodes: 157.

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)

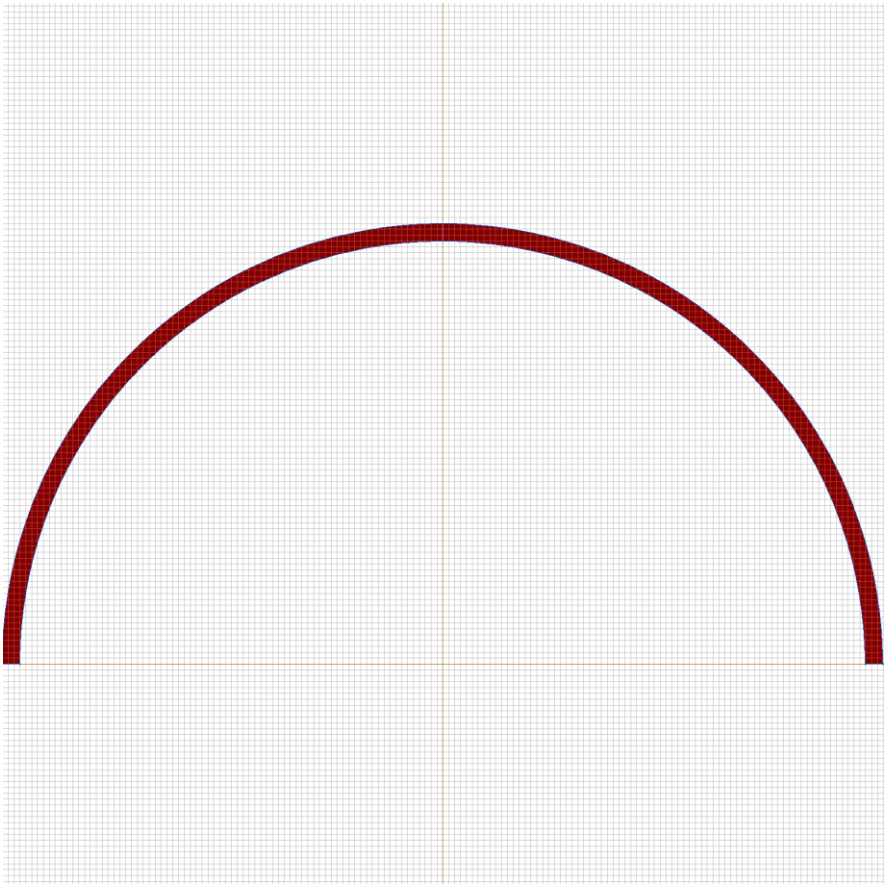
Blocks:	Edges:	Vertices:
• sphere •	• heat • cold •	

Detailed information about each label is listed below.

Labelled objects: block "sphere"

There are (1) objects with this label

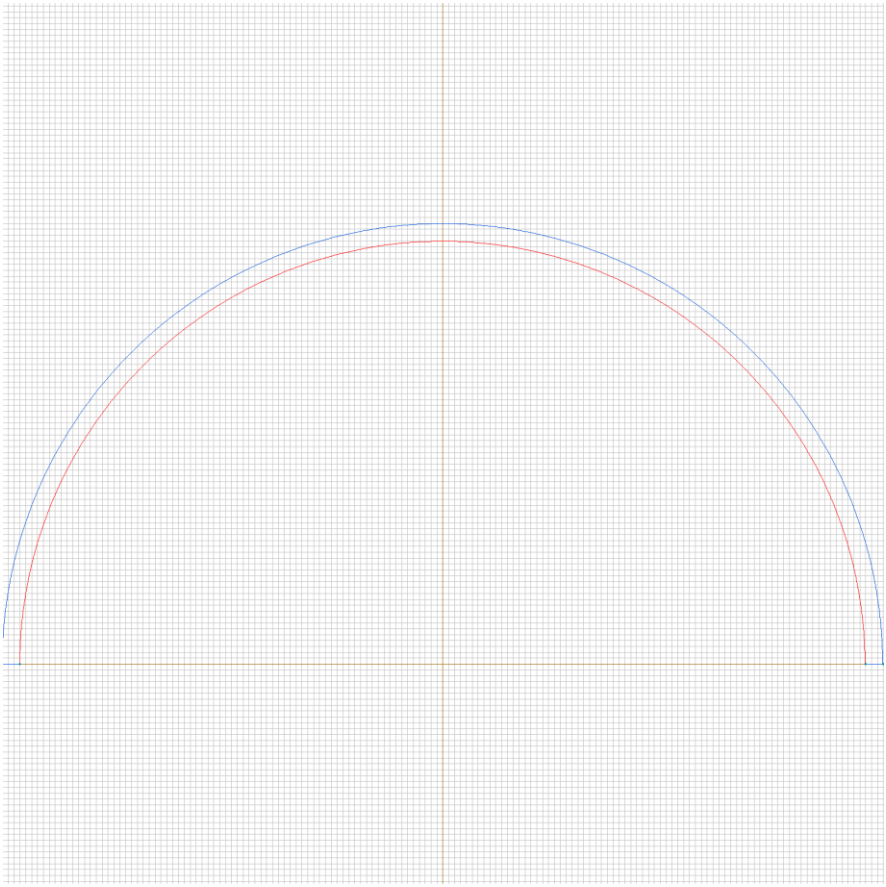
Thermal conductivity: lambda_x=40 [W/(K*m)], lambda_y=40 [W/(K*m)]



Labelled objects: edge "heat"

There are (1) objects with this label

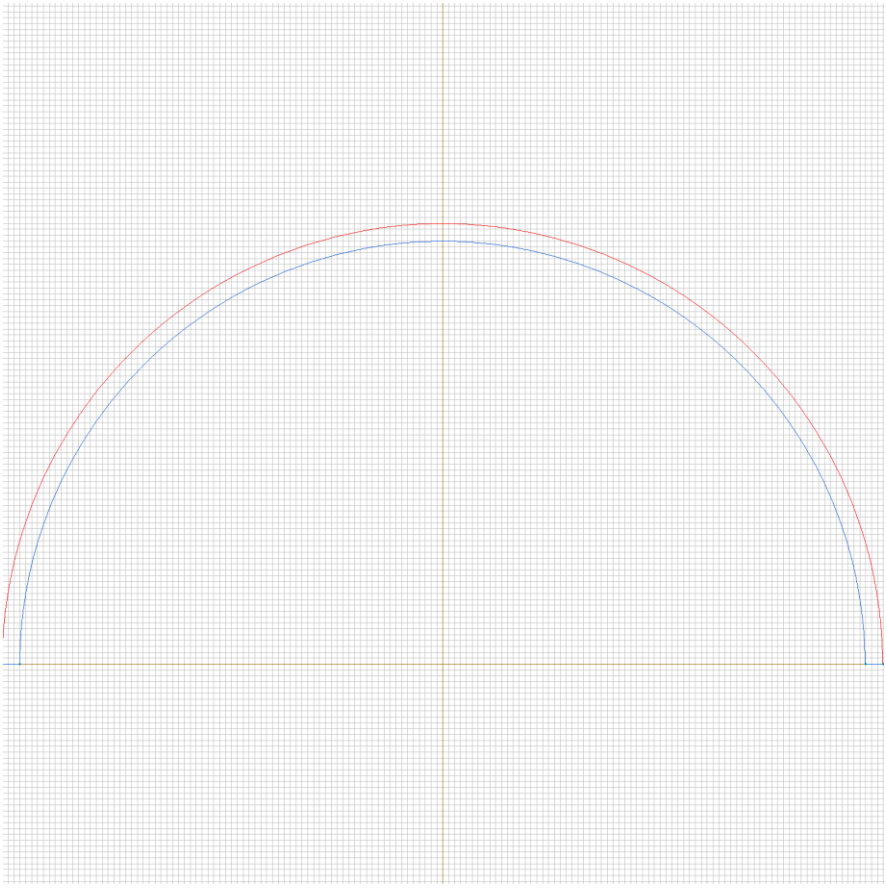
Temperature: T=273.15+20,K [K]



Labelled objects: edge "cold"

There are (1) objects with this label

Convection: alpha=4.45 [W/(K*m2)], temperature T0=273.15-10,K [K]

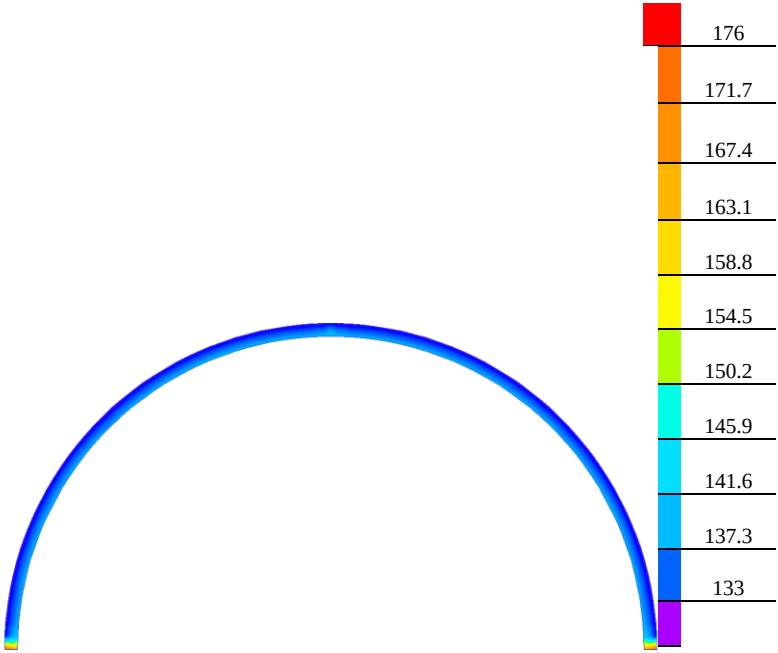


Results

Field lines

Results

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



Nonlinear dependencies

No non-linear dependencies are used in this problem data