Inductor using transient source

- This exercise will discuss how to use transient sources as the excitation for an inductor coil.

Create Design

- **To Create Design**
  - Select the menu item *Project > Insert Maxwell 2D Design*, or click on the  icon

Set Solution Type

- **To set the Solution Type:**
  - Select the menu item *Maxwell 2D > Solution Type*
  - Solution Type Window:
    1. Geometry Mode: **Cylindrical about Z**
    2. Choose **Magnetic > Transient**
    3. Click the **OK** button

Create Model

- **Create Core**
  - Select the menu item *Draw > Rectangle*
    1. Using the coordinate entry fields, enter the position of rectangle
       - X: **0**, Y: **0**, Z: **0**, Press the **Enter** key
    2. Using the coordinate entry fields, enter the opposite corner
       - dX: **2**, dY: **0**, dZ: **20**, Press the **Enter** key
  - Change the name of resulting sheet to **Core** and color to **green**
  - Change the material of the sheet to **Ferrite**
- **Create Coil**
  - Select the menu item *Draw > Rectangle*
    1. Using the coordinate entry fields, enter the position of rectangle
       - X: **0**, Y: **0**, Z: **1**, Press the **Enter** key
    2. Using the coordinate entry fields, enter the opposite corner
       - dX: **5**, dY: **0**, dZ: **18**, Press the **Enter** key
  - Change the name of resulting sheet to **Coil** and color to **Yellow**
  - Change the material of the sheet to **Copper**

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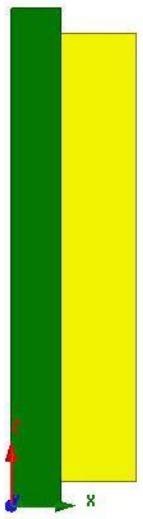
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- **Subtract Sheets**
  - Press **Ctrl** and select the sheets **Core** and **Coil**
  - Select the menu item *Modeler > Boolean > Subtract*
    - Blank Part: **Coil**
    - Tool Part: **Core**
    - Clone tool objects before subtracting: ☑ **checked**

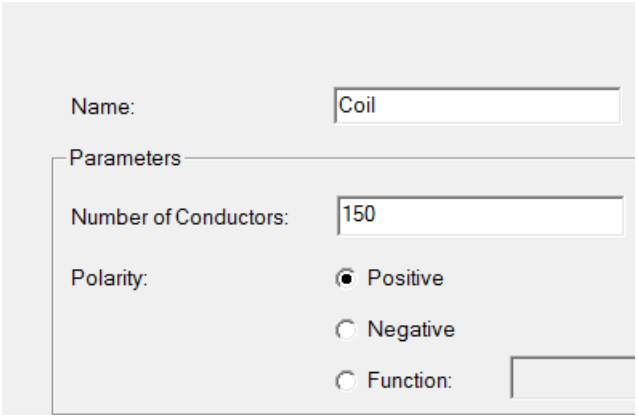


Define Region

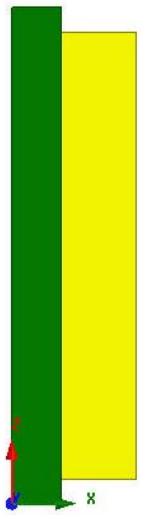
- **Create Simulation Region**
  - Select the menu item *Draw > Region*
  - In Region window,
    1. Pad all directions similarly: ☑ **Checked**
    2. Padding Type: **Percentage Offset**
    3. Value: **500**
    4. Press **OK**
  - **Note:** Region will not be created in Negative X direction due to RZ-symmetry about the Z-axis.

Assign Excitations

- **To Create Coil**
  - Select the object **Coil** from history tree
  - Select the menu item *Maxwell 2D > Excitations > Assign > Coil*
    - Name: **Coil**
    - Number of Conductors: **150**
    - Polarity: **Positive** (into the screen)



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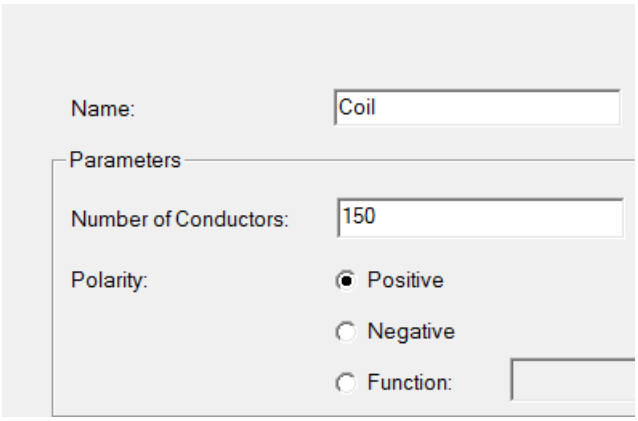


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