

ANSYS Steady Flow over a Cylinder - Geometry

Author(s): Sebastian Vecchi, ANSYS Inc.

Problem Specification

1. Pre-Analysis & Start-Up
2. Geometry
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Geometry

Draw Geometry

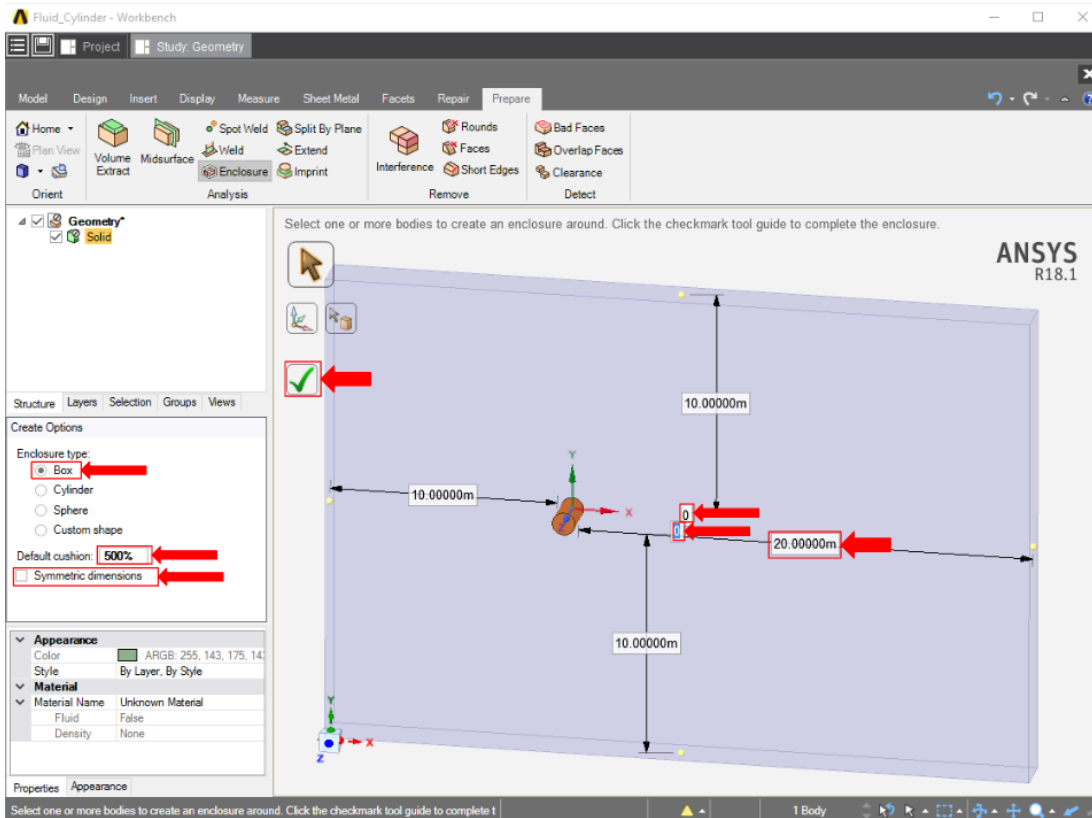
In order to use the units given to us in the problem, press the **Project** button in the top left corner and select **Units > SI**. Click on the Z-axis on the compass in the bottom left corner of the screen to look at only the XY-plane. Right click in the empty white space and choose **Select New Sketch Plane**, then click on the grid that appears, so that the plane we are sketching on will be on the XY-plane. Next, select the **Circle** tool and make a circle around the origin with a radius of 1m.

Use the **Pull** feature in the **Edit** section of the toolbar to extrude the cylinder 2m. The value we choose to pull the cylinder out to is arbitrary; therefore, there is no point in making it too large.

Enclose

In order to create an area around the cylinder where air will move, an enclosure must be made around it to ensure that there is a volume which can be later meshed. The **Enclosure** tool can be found in the **Analysis** section of the toolbar under the **Prepare** tab. Select the cylinder body and a box will appear around the cylinder. Change the **Default cushion** to 500%.

Uncheck the **Symmetrical dimensions** box. This will allow the box to be altered in order to show us the effects of the fluid after it goes around the cylinder. Select the dimension for the X axis after the cylinder and change it to 20m, then select the dimensions in the Z directions and change them to zero. Use the picture below for guidance. Press the green check mark to create the enclosure.



Suppress

Now that the geometry of the flow volume has been created, we can suppress the cylinder from the physics calculation. [Right click the **Solid** in the geometry tree and select **Suppress for Physics**.](#)

[Go to Step 3: Mesh](#)

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