

# ANSYS Steady Flow over a Cylinder - Geometry

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## Problem Specification

1. Pre-Analysis & Start-Up
2. Geometry
3. Mesh
4. Physics Setup
5. Results
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## Geometry

### Draw Geometry

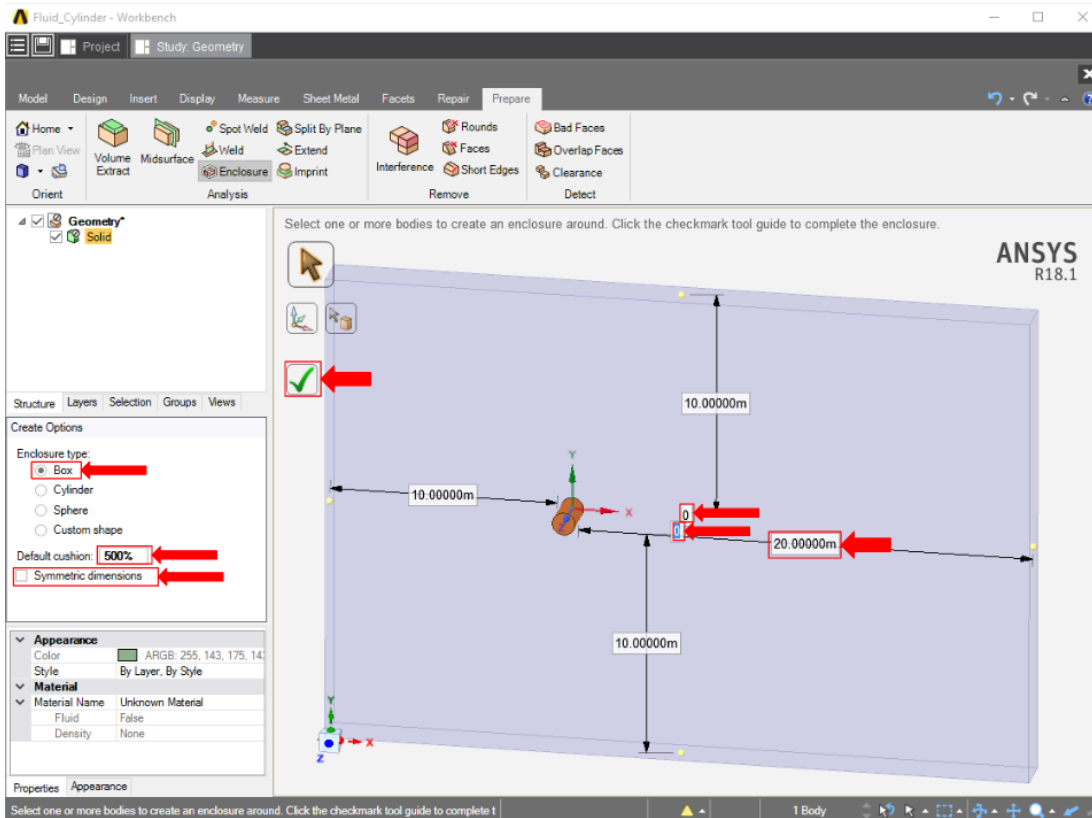
In order to use the units given to us in the problem, press the **Project** button in the top left corner and select **Units > SI**. Click on the Z-axis on the compass in the bottom left corner of the screen to look at only the XY-plane. Right click in the empty white space and choose **Select New Sketch 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](#)

[Go to all ANSYS AIM Learning Modules](#)