

Unsteady Flow Past a Cylinder - Physics Setup

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Physics Setup

Launch FLUENT.

(Double Click) Setup in "Unsteady Flow", the duplicate project. Select **Double Precision**, and if using a computer with multiple cores, select parallel, and set the number of cores to be used.



Then click **OK**

Transient

In this step here we will, tell FLUENT to solve for the unsteady flow. As you can see, by default FLUENT will solve for the steady flow.

Problem Setup > General. Set **Time** to **Transient**.

General

Mesh

Scale... Check Report Quality

Display...

Solver

Type

☒ Pressure-Based
☐ Density-Based

Velocity Formulation

☒ Absolute
☐ Relative

Time

☐ Steady
☒ Transient

2D Space

☒ Planar
☐ Axisymmetric
☐ Axisymmetric Swirl

☐ Gravity Units...

Help

Specify Material Properties

To achieve a Reynolds number of 120, as required in the problem statement, we will change the material viscosity, to 8.333×10^{-3} kg/m*s.

Problem Setup > Materials > Fluid > air > Create/Edit.... Set the **viscosity** to 8.333E-3 (kg/m*s). Click **Change/Create**.

Properties

Density (kg/m³) constant Edit...
1

Viscosity (kg/m-s) constant Edit...
0.008333

Then click **Close**.

Save Project

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