ANSYS AIM - Backwards Facing Step

Author(s): Sebastian Vecchi, ANSYS Inc.

Problem Specification

Separation and reattachment of turbulent flow occurs as the fluid encounters a backwards facing step and eventually reaches the floor. Consider the diagram below which illustrates the problem.

A developed, turbulent, steady flow enters through an inlet, passes over a backwards facing step and then reaches the ground. In this demonstration, an enclosure will need to be created around the step and air will be used as the flow material. Air will enter via an inlet at the top step at a speed of 0.4 m/s, with a density of 1.23 kg/m^2 and dynamic viscosity of 1.86e-5 Ns/m^2. From this data, the Reynold's number can be calculated to be about 5000.

Go to Step 1: Pre-Analysis & Start-Up

Go to all ANSYS AIM Learning Modules