

TURBULENT FLOW OVER BACKWARD FACING STEP

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Abstract

Backward-Facing Step (BFS) flow is a flow separation model, in which separation of flow occurs when the flow is exposed to a sudden increase in cross-sectional area. This simulation is to study the changes in flow properties over a backward-facing step. The flow is a steady-state incompressible and turbulent flow. The purpose of this case study is to simulate and analyse the changes in flow properties over a BFS, to collect data on the convergence of flow parameters, visualizing turbulent flow, creating contour plot and observe the changes in flow characteristics with the change in Turbulence Models and Reynolds number.

Procedure-

- Mesh generated using blockMesh utility
- Setting boundary/initial conditions (BC/IC)
- Mesh imported into OpenFOAM
- Simulated in simpleFoam solver
- Post-processing in Paraview and Gnuplot
- Comparing the data obtained

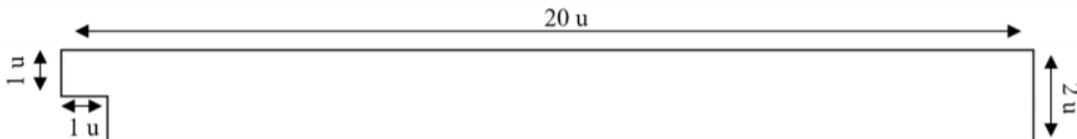


Fig.2 Side view of the domain