Simulation of Shock Tube problem using pisoCentralFoam

OpenFOAM has became a powerful Opensource CFD tool for the research work in different fields of fluid dynamics. But it lacks detailed documentation for the solvers made and to use different tutorials which comes with the installation.

For this purpose the current work tends to Illustrate to setup and run the case of "Simulation of Shock Tube problem" using pisoCentralFoam and compare the results with analytical solution.

Geometry:
- Length of shock tube = 0.3 m
- Location of Diaphragm = 0.15 m
- Breadth of the Shock Tube = 0.06 m

Conditions:
- Pressure at Driver section = 300000 Pa
- Pressure at Driven section = 30000 Pa
- Temperature at Driver and Driven section = 288 K
- Fluid at Driver and Driven section = Air