FLUENT - Flat Plate Boundary Layer

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Problem Specification
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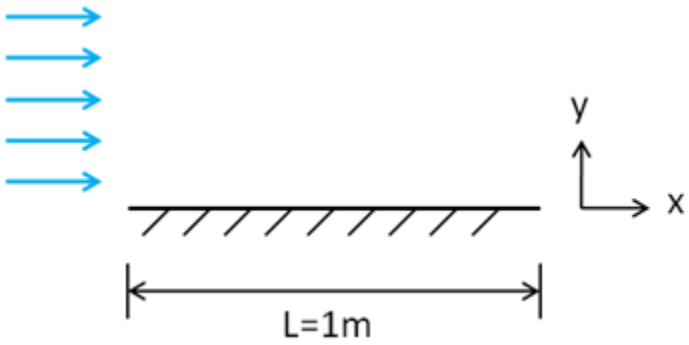
Flat Plate Boundary Layer

Problem Specification



Consider a fluid flowing across a flat plate, as illustrated above. Obtain the velocity and pressure distribution when the Reynolds number based on the plate length is 10,000. This Reynolds number is obtained by using the following settings. The plate length is 1 m. The incoming fluid is flowing in the x-direction with a velocity of 1 m/s. The density of the fluid is 1 kg/m^3 and the viscosity is 1 x 10 ^(-4) kg/(m-s). Note that these values are not necessarily physical. They have been picked to yield the desired Reynolds number.

Check your results by comparing the velocity and pressure distribution with classical boundary layer theory.

Handouts:

1. Slides used in the videos
2. ANSYS Fluent solution outline

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

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