



FLUIDS LABORATORY

College of Engineering

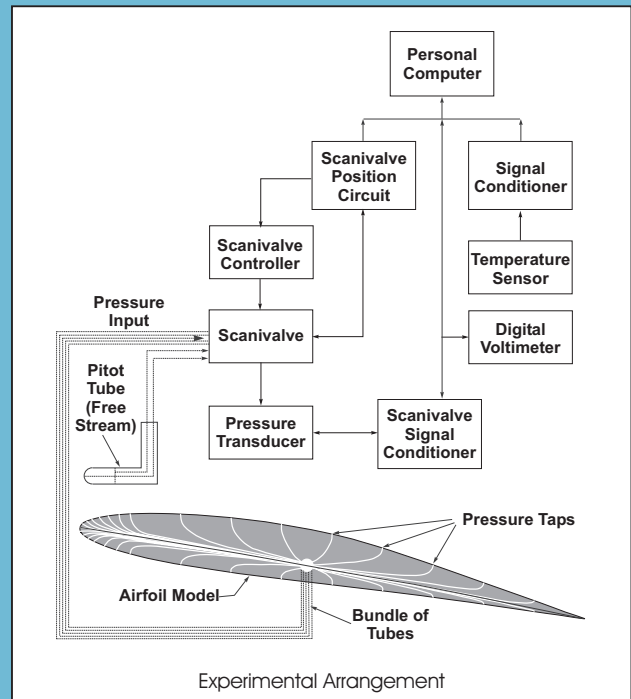
Measurement of Pressure Distribution and Lift for an Airfoil

Purpose

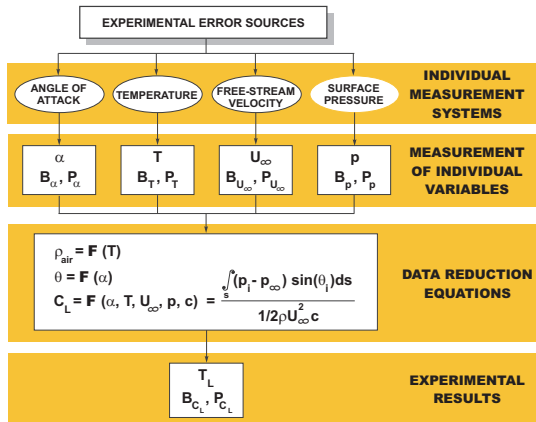
The objectives of the experiment are to examine the surface pressure distribution and to compute the lift force acting on an airfoil.

Test Design

A Clark-Y airfoil is set in the test section of an open-throat wind tunnel. The lift force on the airfoil is determined by integration of the measured pressure distribution over the airfoil's surface. Measurements are made using an automated data acquisition system (ADAS) sketched in the figure below.



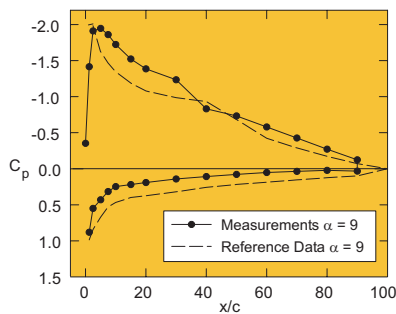
Measurement Systems



Data Analysis

- Calculate pressure coefficients, total uncertainties, and plot C_p versus x/c .
- Calculate the lift coefficient per unit span length, C_L , and its uncertainty.
- Compare measured data with reference data at same Reynolds numbers.

Results



Comparison of reference data and experimental results

