Diagram of an airfoil

Explore the static anatomy, dynamic interactions, and resulting forces of any airfoil.

Airfoils are the cross-sections of a wing or lifting surface (i.e., propellers and fins). These shapes drive the underlying performance of a lifting surface. As indicated in the Figure below, the shape is ...

When an airfoil is moving up through the air, it may enter from the air to the clouds. ...

The side view shows an airfoil shape with the leading edge to the left. This airfoil is a modern, thick airfoil, which is slightly different from the thin airfoils used by the Wrights and shown ...

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Some plant seeds and creatures that fly through the air or swim through the water have airfoil shapes. This diagram shows a typical supercritical wing cross section, or airfoil.

The theory idealizes the flow around an airfoil as two-dimensional flow around a thin airfoil. It can be imagined as addressing an airfoil of zero thickness and infinite wingspan.

Thin airfoil theory is a simple theory of airfoils that relates angle of attack to lift for incompressible, inviscid flows. It was devised by German mathematician Max Munk and further refined by British aerodynamicist Hermann Glauert and others in the 1920s. The theory idealizes the flow around an airfoil as two-dimensional flow around a thin airfoil. It can be imagined as addressing an airfoil of zero thickness and infinite wingspan.

The second chart also has an insert picture of the air foil geometry and the aerodynamic center for the airfoil at different Reynolds numbers is provided in tabular form.

A typical airfoil and its properties are shown in Figure 2, and are also described below. Figure 2: Typical Airfoli (Cross-Sectional Shape) of An Airplane Wing

The figure below illustrates the rapid evolution of airfoil shapes tailored for aircraft applications between 1908 and 1944, with the thin, highly cambered airfoil sections used on early airplanes soon being ...

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