(EQUATION) [C-1-3]

- From **(EQUATION) [A-5-6]** the pressure coefficient (C_p) is a dimensionless (i.e., the size independent) quantity and can be defined as:
  $C_p = \frac{p - p_\infty}{q_\infty}$
  where,
  p_∞: freestream static pressure
  q_∞: freestream dynamic pressure ($0.5\rho_\infty V_\infty^2$)
- In aerodynamics, a typical convention of C_p plot is **opposed vertical axis** (negative up & positive down direction). This is convenient to represent (visualize) the lower pressure (suction) surface (typically upper surface) and the higher (pressure) surface (typically lower surface). Some important interpretations of the pressure coefficient include:
- $\boldsymbol{C_p = 1}$**:** means that the location where the velocity (V) is equal to zero (**stagnation point**). Note that the highest possible positive value of pressure coefficient is: $C_p = 1$ (C_p cannot become more than 1: it is impossible, by definition).
- $\boldsymbol{C_p = 0}$**:** means that the location where the static pressure at that point (p) becomes equal to the freestream static pressure (p_∞), commonly called: the **static pressure port** location.
- $\boldsymbol{C_p < 0}$**:** means that the surface pressure is lower than the freestream static pressure. The surface of negative pressure coefficient is called "**suction surface**" of an airfoil.
- $\boldsymbol{C_p > 0}$: means that the surface pressure is higher than the freestream static pressure. The surface of positive pressure coefficient is called "**pressure surface**" of an airfoil.