

Solid Blockage Correction

Corrections for Coefficient of Lift

From Barlow [1],

$$C_l = C_{lu} (1 - \sigma - 2\varepsilon)$$

Where C_l = Corrected lift coefficient

C_{lu} = Uncorrected lift coefficient

$$\sigma = \frac{\pi^2}{48} X \left(\frac{c}{h} \right)^2 \quad \text{with } c = \text{Chord length of the aerofoil}$$

h = Tunnel height

ε = Total blockage

$$\varepsilon = \varepsilon_{sb} + \varepsilon_{wb}$$

with ε_{sb} = Solid blockage correction

ε_{wb} = Wake blockage correction

* However for this data processing, only ε_{sb} will be considered.

A **solid blockage** correction for 2-D aerofoil is:

$$\varepsilon_{sb} = \Lambda \sigma \quad \text{with } \Lambda = \text{A body shape factor}$$

The body shape factor, Λ for NACA 4415 can be derived from **Figure 2** [1].

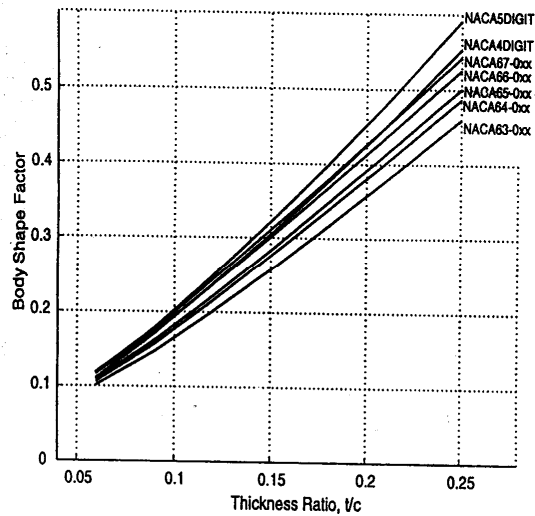


Figure 2 : Values for Λ