



$$S_{bulk} \geq R^2(0.013k_{bulk}^2 + 1.53k_{bulk} + 0.5)$$

$$S_{body} = 2\pi Rl_{body}$$

$$S_{nose} \geq 2\pi R^2 \left(\frac{1}{3} + \frac{2}{3}k_{nose}^{8/5} \right)^{5/8}$$