

Pieter P

[illegible]
$$k_3^2 z \leq \frac{4 C_P \rho n_h D^5}{\pi l_{zz}}$$
$$\begin{aligned} M_{\text{prop}, m} &= \left(L_{\text{prop}} + L_m \right) \left(\dot{n}_1 + \dot{n}_2 + \dot{n}_3 - \dot{n}_4 \right) \frac{n_z}{n_1 + n_2 + n_3 - n_4} \\ &= 4 \left(L_{\text{prop}} + L_m \right) \dot{n}_z M_{\text{prop}, m} + M_z = 0 \\ M_z &= -4 \left(L_{\text{prop}} + L_m \right) \dot{n}_z \alpha_z = -4 \frac{L_{\text{prop}} + L_m}{L_{\text{zz}}} \dot{n}_z \\ &= -k_4 z \end{aligned}$$