let $H = \frac{\text{Torque}}{\text{Drag}} = \text{Max turn}$

let t = time

let $K = \frac{\text{Rotation Inertia}}{\text{Angular Drag}}$

let C = % of max turn in decimal
(ex. .9 = 90%

Time to turn % $= -K \ln(1-C)$

velocity with respect to time $= v(t)$

$$v(t) = H\left(1 - e^{-\frac{t}{K}}\right)$$

Radians traveled with respect to t

$$s(t) = Ht + Kt\left(e^{-t/K} - 1\right)$$