$$\rho_s := 1200\,\frac{kg}{m^3}$$ $$\rho_s := 1200\,\frac{kg}{m^3}$$

$$\beta := 0.03491 rad$$

$$m_s := 0.1\,\frac{kg}{s}$$ $$m_s := 0.1\,\frac{kg}{s}$$

$$q_s := \frac{m_s}{\rho_s}\cdot\frac{m^3}{s} = 8.333\times 10^{-5}\,\frac{m^6}{s^2}$$ $$\frac{m_s}{\rho_s} = \left(8.333\cdot 10^{-5}\right)\,\frac{m^3}{s}$$

Both ρ_s and m_s are dimensioned variables, don't multiply by units again.

Given

$$-1\cdot\frac{d}{dz}H_x(z) = \frac{-3\cdot\tan\left(\frac{\Theta}{\text{UnitsOf}(rad)}\right)}{4\cdot\pi\cdot\left(\frac{n}{\text{UnitsOf}(rpm)}\right)}\cdot\frac{\left(\frac{m_s}{\text{UnitsOf}\left(\frac{kg}{s}\right)}\right)}{\left(\frac{\rho_s}{\text{UnitsOf}\left(\frac{kg}{m^3}\right)}\right)}\cdot\left[\left(\frac{R_w}{\text{UnitsOf}(m)}\right)^2 - \left[\left(\frac{R_w}{\text{UnitsOf}(m)}\right) - (H_x($$

$$H_x\left(\frac{L_{retort}}{\text{UnitsOf}(m)}\right) = 0.011$$

$$z := 0, 0.1 .. \frac{L_{retort}}{\text{UnitsOf}(m)}$$ You don't need to define z

$$H_x := \text{Odesolve}(z, 0)$$

$$H_x(0) = \blacksquare$$

$$Hu_x(z) := \boxed{H_x}(z)\cdot \text{UnitsOf}(m)$$