

$$\chi := 1.3$$

$$p1 := 20 \cdot 10^5$$

$$p2 := 0.8300 \cdot 10^5$$

$$h(x) := \text{linterp}(T, cp, x)$$

$$v1(x) := \text{linterp}(T, v, x)$$

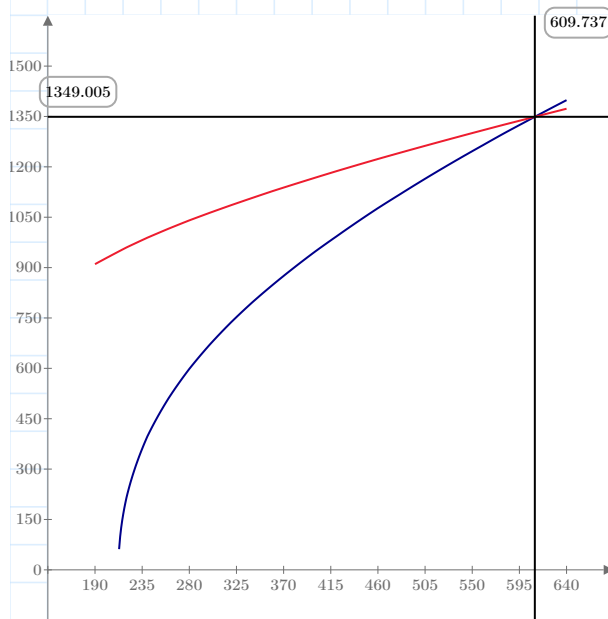
$$c1(x) := \sqrt{2000 \cdot (h(x) - h(T_0))}$$

$$c2(x) := \sqrt{\frac{2 \cdot \chi}{\chi - 1} \cdot p1 \cdot v1(x) \cdot \left(1 - \left(\frac{p2}{p1}\right)^{\frac{\chi - 1}{\chi}}\right)}$$

$$T_0 = 212.37$$

$$\mathbf{a} := \text{root}(c1(x) - c2(x), x, 170, 640) = 609.737$$

$$t := 190, 191..640$$



t

$$c1(\mathbf{a}) = 1349$$

$$v1(\mathbf{a}) = 0.2018$$

$$h(\mathbf{a}) = 3707.9$$

$$\underline{c1(t)}$$

$$T_0 = 212.37$$

$$\underline{c2(t)}$$

$$h(T_0) = 2798$$

Nedan verkningsgrad på dysan

$$\frac{c1(\mathbf{a})^2 \cdot 0.5}{908600 - 20900 + c1(\mathbf{a})^2 \cdot 0.5} = 0.5062$$

$$P := 2.1 \cdot 10^{12}$$

Effekt på turbin (Wh) detta är då 2 TWh vid 8400 timmar/år

$$\eta := .9732$$

Verkningsgrad på mekanisk, turbin och generator

$$mf := \frac{P}{8766 \cdot 8 \cdot 0.5 \cdot \left( c1(\mathbf{a}) \cdot \cos\left(\frac{11 \cdot \pi}{180}\right) \right)^2 \cdot \eta} = 35.094$$

$$\psi(x) := \sqrt{\frac{x}{x-1} \cdot \left( x^{\frac{2}{x}} - x^{\frac{x+1}{x}} \right)}$$

$$Q := \left( \frac{2}{x+1} \right)^{\frac{x}{x-1}}$$

$$Am := \frac{mf}{\psi(Q) \cdot \sqrt{\frac{2 \cdot p1}{v1(\mathbf{a})}}}$$

$$Ae := \frac{mf}{\psi\left(\frac{p2}{p1}\right) \cdot \sqrt{\frac{2 \cdot p1}{v1(\mathbf{a})}}}$$

$$D1 := 2000 \cdot \sqrt{\frac{Am}{\pi}}$$

$$D1 = 145.854$$

Lutningsvinkel på dysa 11 grader

$$D2 := 2000 \cdot \sqrt{\frac{Ae}{\pi}}$$

$$D2 = 278.026$$

$$L := \frac{\frac{D2 - D1}{2}}{\tan\left(\frac{4.5 \cdot \pi}{180}\right)}$$

$$L = 839.708$$