$$PV = nRT \rightarrow \frac{P}{\rho} = R^*T$$

$$\Delta S = S^{\leftarrow} + S_{irr}$$

$$TP^{\frac{1-k}{k}} = Pv^{\gamma} = cost \rightarrow Adiabatico$$

$$x^* = (1-\chi)x^*_{LS} + \chi x^*_{VS}$$

$$\chi = \frac{x^* - x_{LS^*}}{x^*_{VS} - x^*_{LS}}$$

$$h_{L_{sat^*}} = h^*_{LS} + v_{LS}(P - P_{SAT})$$

$$h^*_L = c_L(T_L - T_o)$$

$$\dot{m} = \rho \overline{w} A$$

$$\overline{w}_2 = \overline{w}_1 \frac{A_1}{A_2}$$

$$s_i = s_o + c \ln \frac{T_2}{T_1}$$

$$\dot{L}^{\leftarrow} = \dot{M}(h_2 - h_1) \overset{G.P}{=} \dot{M}c_p(T_2 - T_1)$$

$$\dot{E} = \dot{M}(h^* + gz + \frac{1}{2}\overline{w}^2) + \dot{Q}^{\leftarrow} - \dot{L}^{\rightarrow} \overset{S.S}{=} 0$$

$$\dot{S} = \sum \dot{M}_{in}s_{in} - \sum \dot{M}_{out}s_{out} + \dot{S}^{\leftarrow} + \dot{S}_{irr} \overset{S.S}{=} 0$$

$$\Delta h \overset{G.P}{=} c^*_p \Delta T$$

$$\text{Ugello: } \dot{M}(h_4 - h_5) = \frac{\dot{M}w_5^2}{2}$$

$$c = \sqrt{\frac{\gamma P}{\rho}} = \sqrt{\gamma R^* T}$$

$$X_{cr} = X_1\,(2/(1+\gamma))$$

$$\Delta U \overset{G.P}{=} Mc^*_v(T_{fin} - T_{in})$$

$$= Mc(T_{fin} - T_{in}) \rightarrow \begin{smallmatrix}\text{liquidi}\\ \text{e solidi}\end{smallmatrix}$$

$$\dot{q} = \Delta T / \Sigma R$$

$$\dot{q}(x) = \dot{q}'''x - kc_1$$

$$T(x) = -\frac{\dot{q}'''}{2k}(L^2 - x^2) + c_1 x + c_2$$

$$\dot{q}(r) = \frac{\dot{q}'''r}{2} - \frac{kc_1}{r}$$

$$T(r) = -\frac{\dot{q}'''}{4k}(R^2 - r^2) + c_1 \ln(r) + c_2$$

$$\frac{\partial T}{\partial x} = 0 \implies T_{max}$$

$$\dot{S} = \frac{\dot{Q}}{T}$$

$$Q = mc\Delta T$$

$$\Delta S \overset{G.P}{=} M\left(c^*_v \ln\frac{T_2}{T_1} + R^* \ln\frac{V_2}{V_1}\right)$$

$$\overset{G.P}{=} M\left(c^*_p \ln\frac{V_2}{V_1} + c^*_v \ln\frac{P_2}{P_1}\right)$$

$$\overset{G.P}{=} M\left(c^*_p \ln\frac{T_2}{T_1} - R^* \ln\frac{P_2}{P_1}\right)$$

$$\theta = \theta_i \cdot e^{\frac{-t}{\tau}}$$

$$\tau = \frac{\rho c^* V}{hA_s}$$

$$Bi = \frac{hL}{k_s} \leq 0,1 \overset{\text{tubi/clndr}}{=} \frac{V}{S}$$

$$Re = \frac{wL_c}{\nu} = \frac{\rho w L_c}{\mu} \overset{\text{tubi/clndr}}{=} \frac{\rho w_m D}{\mu} \overset{\text{tubi/clndr}}{=} \frac{4\dot{m}}{\mu\pi D}$$

$$Pr = \frac{\mu c^*}{k}$$

$$Nu = \frac{hL}{k_F}$$

$$Gr = \frac{\rho w_{NAT} L}{\mu}$$

$$T \cdot \lambda_{MAX} = 2898$$

$$\tau + \alpha + \rho = 1$$

$$\dot{Q}_{12} = \frac{\sigma(T_1^4 - T_2^4)}{\frac{1-\varepsilon_1}{A_1\varepsilon_1} + \frac{1}{A_1F_{12}} + \frac{1-\varepsilon_2}{A_2\varepsilon_2}}$$

$$M^o = \varepsilon\sigma T^4$$

$$F_{12}A_1 = F_{21}A_2$$

$$\dot{Q} = UA_s\Delta T_{m,\ln} = \frac{A_s \Delta T_{m,\ln}}{R_{tot}}$$

$$\Delta T_{m,\ln} = \frac{\Delta T_1 - \Delta T_2}{\ln\left(\frac{\Delta T_1}{\Delta T_2}\right)}$$

$$\eta_{diesel} = 1 - c_v(T_4 - T_1)/c_p(T_3 - T_2)$$

$$\eta_{joule} = \frac{L_t - L_c}{Q_h} = 1 - 1/\beta^{\frac{\gamma-1}{\gamma}} \rightarrow \beta = P_{max}/P_{min}$$

$$\eta_R = 1 - L_{\text{turb}}/Q_e$$

$$COP|\varepsilon = Q_{\text{voluto}}/L_{net}$$

	$R_{CD}[K/W]$	R_{CD} specifiche	$R_{CV}[K/W]$	R_{CV} specifiche
Parete Piana	$\frac{S}{kA}$	$\frac{S}{k}[\frac{m^2K}{W}]$ per $\dot{q}''$	$\frac{1}{hA}$	$\frac{1}{h}[\frac{m^2K}{W}]$
Cilindro Cavo	$\frac{\ln\frac{r_e}{r_i}}{2\pi kL}$	$\frac{\ln\frac{r_e}{r_i}}{2\pi k}[\frac{mK}{W}]$ per $\dot{q}'$	$\frac{1}{2\pi rLh}$	$\frac{1}{2\pi rh}[\frac{mK}{W}]$
Sfera Cava	$\frac{r_e - r_i}{4\pi r_e r_i k}$	N/A	$\frac{1}{4\pi r^2 h}$	N/A

$$R = 8,314 kJ \cdot K^{-1} kmol^{-1}$$
Stephan-Bolzmann - $\sigma = 5,67 \times 10^{-8}\, W \cdot m^{-2} K^{-4}$
$$c_{\text{water}} = 4,187 kJ \cdot kgK$$

$$M_{m,aria} = 28,96\, kg \cdot kmol^{-1}$$
r di acqua $= 335 kJ \cdot kg^{-1}$
$$P_{ATM} = 101,325 kPa$$