

FÓRMULES

$$W = F \cdot l \quad \rightarrow \quad P = \frac{F \cdot l}{t} = F \cdot v$$

$$W = F \cdot l = p \cdot S \cdot l = p \cdot V \rightarrow P = \frac{p \cdot V}{t} = p \cdot q$$

$$P = \Gamma \cdot \omega = F \cdot r \frac{v}{r} = F \cdot v$$

$$E_m = mgh + \frac{1}{2}mv^2$$

$$P_c = \frac{1/2mv^2}{t} = \frac{1/2\rho Vv^2}{t} = \frac{1/2\rho lSv^2}{t} = \frac{1}{2}\rho Sv^3$$

$$\rho_{\text{radiació}} = \frac{1000w}{m^2}$$

$$E = mc^2 \quad c = 3.10^8 \frac{m}{s}$$

$$1Kwh \frac{1000w}{1Kw} \frac{3600s}{1h} \frac{1J}{1w \cdot s}$$

$$\Delta U = Q + W$$

$$H = U + pV$$

$$P_{cal} = \frac{J}{Kg}$$

$$1atm = 1,013bar = 1013mbar = 101300Pa \approx 10^5 Pa$$

$$Q = m \cdot C_e (T_2 - T_1)$$

$$C_e = \frac{J}{Kg \cdot ^\circ C}$$

$$\frac{1cal}{4,18J}$$

$$\rho = \frac{Kg}{m^3}$$

$$Q = m \cdot L_v$$

$$L_v = \frac{J}{Kg}$$

$$Q = m \cdot L_f$$

$$\eta = \frac{W_u}{W_c} = \frac{E_u}{E_c} = \frac{Q_u}{Q_c}$$

$$P_c = P_u + P_p$$

$$\eta = \frac{P_u}{P_c} = \frac{P_c - P_p}{P_c} = 1 - \frac{P_p}{P_c}$$

$$\eta_t = \frac{W}{Q_h} = \frac{Q_h - Q_c}{Q_h} = 1 - \frac{Q_c}{Q_h}$$

$$\frac{Kg}{cm^2} \cdot \frac{9,81N}{Kgf} \cdot \frac{10^4 cm^2}{1m^2} = \frac{N}{m^2} = P_a$$

$$\eta_c = \frac{T_h - T_c}{T_h} = 1 - \frac{T_c}{T_h}$$

$$W_{\max} = Q_h \cdot \eta$$

$$\eta_s = \frac{\eta_t}{\eta_c}$$

$$\varepsilon = \frac{Q_c}{W} = \frac{Q_h - W}{W} = \frac{Q_h}{W} - 1$$

$$\varepsilon = \frac{Q_h}{W} = \frac{Q_c + W}{W} = \frac{Q_c}{W} + 1$$

$$\varepsilon + 1 = \frac{Q_h}{W} \rightarrow W = \frac{Q_h}{\varepsilon + 1}$$

$$\varepsilon - 1 = \frac{Q_c}{W} \rightarrow W = \frac{Q_c}{\varepsilon - 1}$$

$$\eta_c = \frac{T_c}{T_h - T_c}$$

$$\eta_c = \frac{T_h}{T_h - T_c}$$

$$W_u = p_{me} \cdot V$$

$$P_u = \Gamma \cdot \omega$$

$$P_u = \frac{W}{t}$$

$$f = \frac{1\text{volta}}{\text{min}} \cdot \frac{1\text{min}}{60\text{s}} \cdot \frac{1\text{cicle}}{2\text{voltes}} = \frac{\text{cicles}}{\text{s}} \quad \omega = \frac{1\text{volta}}{\text{min}} \cdot \frac{1\text{min}}{60\text{s}} \cdot \frac{2\pi\text{rad}}{1\text{volta}} = \text{s}^{-1} \quad \omega = \frac{2\pi}{T} \quad T = \frac{1}{f} \quad \omega = 2\pi f$$

$$V_c = C \cdot \pi r^2 \quad V_t = V_c \cdot Z$$

$$r = \frac{V_c + V_{\min}}{V_{\min}} \quad \frac{1\text{cv}}{736\text{w}}$$

$$P_1 = P_2 \quad \omega_1 \Gamma_1 = \omega_2 \Gamma_2 \quad \omega_1 D_1 = \omega_2 D_2 \quad i = \frac{\omega_2}{\omega_1} = \frac{\Gamma_1}{\Gamma_2} = \frac{D_1}{D_2}$$

$$p = \frac{F}{S} \quad S = \pi r^2$$

$$p_1 = p_2$$

$$W_1 = W_2$$

$$V_1 = V_2$$

$$P = \frac{p \cdot V}{t} = p \cdot q$$

$$q_1 = q_2 \quad q = \frac{V}{t} = \frac{S \cdot l}{t} = S \cdot v \quad S_1 \cdot v_1 = S_2 \cdot v_2$$

$$P = \frac{mgh}{t} = \frac{\rho Vgh}{t} = \rho qgh$$

$$\rho gh + \frac{1}{2} \rho v^2 + p = cte$$

$$\frac{p_1 V_1}{T_1} = \frac{p_2 V_2}{T_2}$$

$$p_1 V_1 = p_2 V_2 \quad (T = cte) \quad \frac{p_1}{T_1} = \frac{p_2}{T_2} \quad (V = cte) \quad \frac{V_1}{T_1} = \frac{V_2}{T_2} \quad (p = cte)$$

$$W = p(V_2 - V_1) \left\{ \begin{array}{l} V = cte \rightarrow W = 0 \\ p = cte \rightarrow W = p(V_2 - V_1) \\ T = cte \rightarrow W = nRT \ln \frac{V_2}{V_1} \quad PV = nRT \quad W = pV \ln \frac{V_2}{V_1} \\ \Delta Q = 0 \rightarrow W = \frac{p_1 V_1 - p_2 V_2}{1 - \gamma} \quad p_1 V_1^\gamma = p_2 V_2^\gamma \quad T_1 V_1^{\gamma-1} = T_2 V_2^{\gamma-1} \end{array} \right.$$

$$R = 8,314 \frac{J}{K \cdot mol}$$

$$\sigma = \frac{F}{S} \quad \left[\frac{N}{mm^2} \right] = MPa$$

$$n = \frac{\sigma_e}{\sigma_{max}}$$

$$\varepsilon = \frac{l_f - l_0}{l_0} \cdot 100$$

$$E = \frac{\sigma_p}{\varepsilon}$$

$$HB = \frac{F}{S} \quad \left[\frac{Kp}{mm^2} \right] \quad S = \pi Df \quad f = \left[\frac{D - \sqrt{D^2 - d^2}}{2} \right]$$

$$HB = \frac{F}{\pi D \left[\frac{D - \sqrt{D^2 - d^2}}{2} \right]}$$

$$HV = 1,8543 \frac{F}{d^2} \quad \left[\frac{Kg}{mm^2} \right]$$

$$K = \frac{mg(h - h')}{S} \quad \left[\frac{J}{mm^2} \right]$$

$$Q = \lambda \frac{S \cdot t \cdot \Delta T}{l} \quad J = \frac{w}{m \cdot K} \cdot \frac{m^2 \cdot s \cdot K}{m} = w \cdot s$$

$$\alpha \Delta T = \frac{\Delta l}{l_0}$$

$$I = \frac{Q}{t} \quad W = V \cdot Q = VIt = P \cdot t \quad V_a - V_b = \frac{W}{Q}$$

$$I = \frac{V}{R} \quad I = \frac{\varepsilon - \varepsilon'}{R + r + r'}$$

$$\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \quad R_t = R_1 + R_2 + R_3$$

$$R = \rho \frac{l}{S} \Rightarrow \sigma = \frac{1}{R}$$

$$P = V \cdot I = RI^2 = \frac{V^2}{R}$$

$$Q = R \cdot I^2 \cdot t$$

$$J = \omega \cdot s \Rightarrow Kwh$$