

10. Performance Parameters

Gas Turbine Engine Performance Parameters include:

- (Uninstalled Engine) Thrust P , kN - Turbojets
- Effective Power N_e , kW - Turboprops, Turboshfts
- Equivalent Power $N_{eq} = N_e + P \cdot \frac{V_f}{\eta_{prop}}$, kW - Turboprops
- Fuel Consumption $G_{f.h}$, $\frac{kg}{h}$
- Weight W_e , kg
- Dimensions:
 - Diamiter D , m
 - Lenght L , m

Specific parameters:

- (Uninstalled Engine) Specific Fuel Consumption S_{Gf} :

$$S_{Gf} = \frac{G_{f,h}}{P}, \frac{\text{kg}}{\text{kN} \cdot \text{h}}$$

- Specific Thrust S_p :

$$S_p = \frac{P}{G_1}, \frac{\text{kN} \cdot \text{s}}{\text{kg}}$$

- Effective Specific Fuel Consumption $S_{Gf.e}$:

$$S_{Gf.e} = \frac{G_{f,h}}{N_e}, \frac{\text{kg}}{\text{kW} \cdot \text{h}}$$

- Specific Effective Power S_{Ne} :

$$S_{Ne} = \frac{N_e}{G_1}, \frac{\text{kW} \cdot \text{s}}{\text{kg}}$$

- Equivalent Specific Fuel Consumption $S_{Gf.eq}$:

$$S_{Gf.eq} = \frac{G_{f.h}}{N_{eq}}, \frac{\text{kg}}{\text{kW} \cdot \text{h}}$$

- Specific Equivalent Power S_{Neq} :

$$S_{Neq} = \frac{N_{eq}}{G_1}, \frac{\text{kW} \cdot \text{s}}{\text{kg}}$$

- Specific Weight γ_e :

$$\gamma_e = \frac{W_e}{P}, \frac{\text{kg}}{\text{kN}}.$$

Uninstalled Engine Thrust

$$P \approx G_1(c_9 - V_f)$$

$$P = G_1(c_9 \cdot v_9 - V_f) + F_9(p_9 - p_0)$$

