

MechGenz - Mechanical Engineering Formula Sheet

Original quick-reference resource for learning and practice.

Mechanics

Normal stress: $\sigma = F / A$

Engineering strain: $\epsilon = \Delta L / L$

Torque: $T = F r$

Mechanical power: $P = T \omega = 2 \pi N T / 60$

Gears

Gear ratio: $i = N_{\text{driven}} / N_{\text{driver}} = Z_{\text{driven}} / Z_{\text{driver}}$

Output speed: $N_{\text{out}} = N_{\text{in}} * Z_{\text{driver}} / Z_{\text{driven}}$

Fluids

Flow rate: $Q = A V$

Reynolds number: $Re = \rho V D / \mu$

Pressure: $p = F / A$

Thermal

Linear expansion: $\Delta L = \alpha L \Delta T$

Heat: $Q = m c \Delta T$