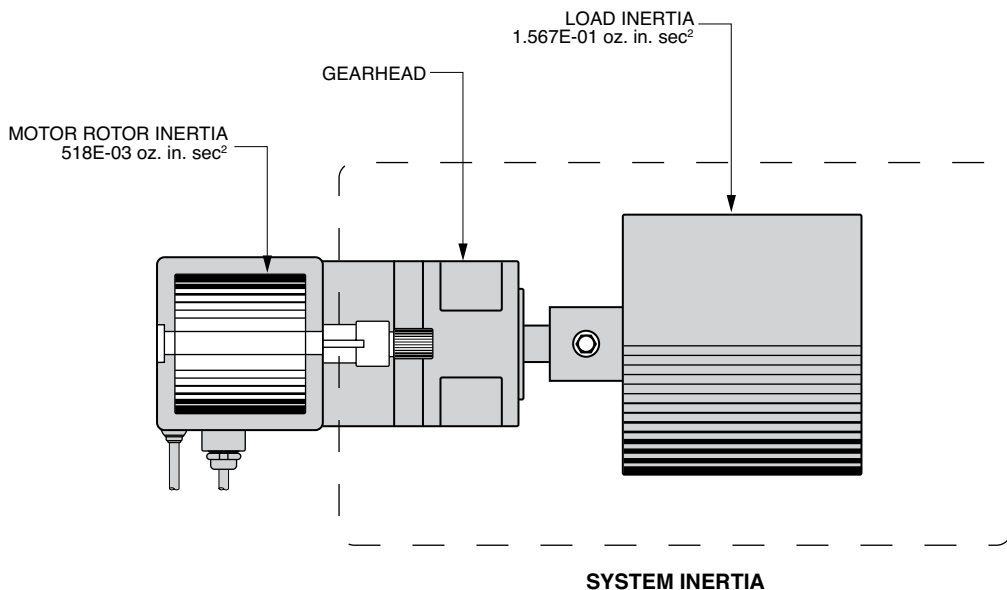


Inertia Matching Example



Formula:

$$\text{System Inertia} = \text{Gearhead Inertia} + \text{Pinion Inertia} + \frac{\text{Load Inertia}}{(\text{Gear Ratio})^2}$$

Given:

Size 23 5.5:1 Gearhead Inertia = 1.746E-04 oz. in. sec²

Size 23 5.5:1 Pinion Inertia = 9.062E-04 oz. in. sec²

Load Inertia = 1.567E-01 oz. in. sec²

Motor Inertia = 5.18E-03 oz. in. sec²

Solution:

$$\text{System Inertia} = 1.746E-04 \text{ oz. in. sec}^2 + 9.062E-04 \text{ oz. in. sec}^2 + \frac{1.567E-01 \text{ oz. in. sec}^2}{(5.5)^2}$$

$$\text{System Inertia} = 6.26E-03 \text{ oz. in. sec}^2$$

$$\text{Ratio of the System Inertia to (:) The Motor Rotor Inertia} = (6.26E-03 \text{ oz. in. sec}^2) : (5.18E-03 \text{ oz. in. sec}^2)$$

-OR-

1.2 to 1 (Inertia Match)

Ideal Inertia Match of
1:1 Yields a Very Fast
System Response

Other Application Parameters to Consider:

- Torque Requirements
- Speed Requirements
- Response Requirements
- Stiffness Requirements
- Resolution Requirements