

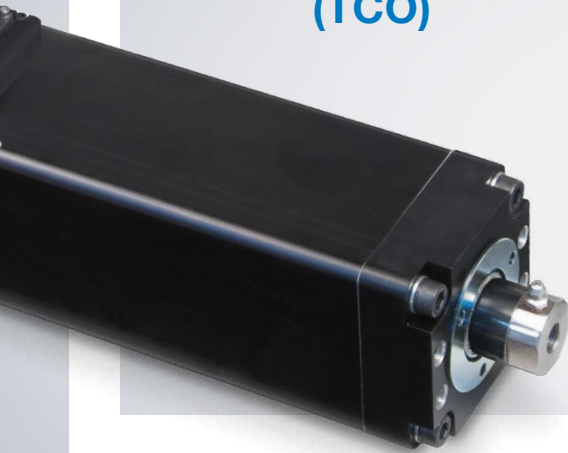
# CALCULATING TOTAL COST OF OWNERSHIP

*Pneumatic vs. Electric Actuators*

$$\text{TOTAL COST OF OWNERSHIP (TCO)} = \text{INITIAL PURCHASE COST} + \left( \text{YEARS OF SERVICE} \times \text{YEARLY COSTS} \right)$$

YEARLY COSTS =

- ELECTRICITY
- + REPLACEMENT
- + MAINTENANCE
- + PRODUCT SCRAP
- + LOST PRODUCTION  
(DUE TO CHANGEOVER AND CYCLE TIMES)

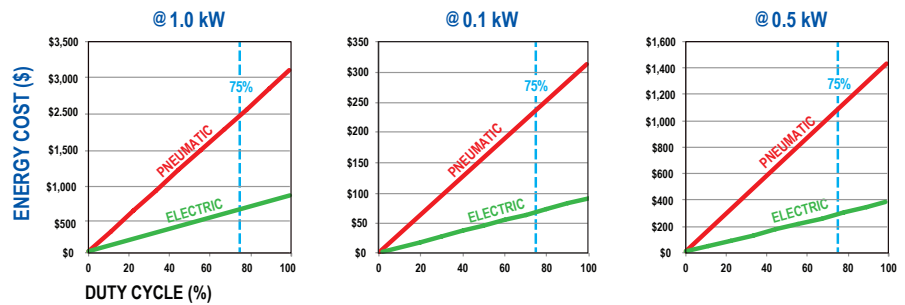


## Calculating the power costs of an application

- ⚡ POWER-OUT (kW) = (Velocity (m/sec) x Force (N)) ÷ 1,000 (converted to kN)
- ⚡ POWER-IN (kW) = Power-Out (kW) ÷ Efficiency (%)
- 💰 COST OF APPLICATION = (Power-In) x (Hours/year) x Electricity Cost

The efficiency differences between an electric and pneumatic system can result in significantly different electric utility costs over the lifetime of the device.

[White paper](#)



0.3 m/sec, 300N  
12 in/sec, 62 lbf

0.2 m/sec, 2500N  
8 in/sec, 565 lbf

0.15 m/sec, 7000N  
6 in/sec, 1570 lbf

Assumptions: Electricity Efficiency 79%; Pneumatic Efficiency 22%; Cost kW/hr \$0.08