

# When You Want to Educate Professionals by Answering FAQs

## FAQs

Our new “FAQ” is a industry-specific content piece answering the most frequently asked industry questions on a particular application area. It gives our editors the opportunity to answer the questions most asked from manufacturing and supply chain professionals in a particular application area. Created in PDF format, these handy, two-page guides are highly sought after by our audiences because of their quick-read format and efficient presentation.

## Benefits

- Include up to two qualifying questions on the registration page. Sponsors receive all leads generated for a year
- Company branding with your logo on ALL promotional material
- Your URL and promotional text appears on the header of every page
- Product or company information is included alongside the FAQ feature in the form of a 2/3 page ad

Note: Sponsors choose the topic, but FAQs are editorially-driven and written by Penton

## Promotions

“FAQs” are initially promoted via a targeted eBlast. Eblasts are standardized so messaging stays consistent to our audience. They are also promoted in specific newsletters, banner ads and native ads, and are archived online for one year. All promotional creative is produced by Penton, making it turnkey for the sponsor!

RATE: \$8,000 NET

Comparing Electric versus Pneumatic Actuators for Total Cost of Ownership

# FAQs

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FREQUENTLY ASKED QUESTIONS

**Q:** My experience is that pneumatic cylinder actuators are inexpensive to implement while electric actuators are expensive to implement. So, what do you mean by “total cost of ownership”?

**A:** So often these choices are made quickly and include initial costs only, yet factors such as efficiency, utility costs, air leaks, maintenance, product replacement costs, product quality, changeover time, and cycle times all determine the “total cost of ownership” (TCO) for a technology. Therefore, we suggest your decision-making process goes beyond the initial purchase price to include yearly replacement costs, maintenance costs, electric utility costs, lost production due to changeover time, and cycle time.

**Q:** With that much to consider, where do I start?

**A:** Our suggestion is to start with determining efficiency combined with electrical utility costs for your actuator needs. We say this because pneumatic system efficiency has been broadly studied, yet improving overall efficiency—including electrical utility consumption of the plant—is seldom discussed. Consider that compressed air is one of the most expensive sources of energy in a plant and you’ll see that a typical compressed air system is, on average, 10 to 20% energy-efficient, whereas electrical systems are closer to 80% efficient. So, for most applications requiring linear motion, the efficiency differences between an electric and pneumatic system can result in significantly

different electric utility costs over the lifetime of the device.

**Q:** My experience is that all pneumatic systems incur leaks of some kind. How much is that a factor and can’t I just fix them?

**A:** You’re right, all pneumatic systems experience leaks, which are the major contributor to poor efficiency, but they are very difficult to identify and fix

dependent on how small the leaks are. Replacing a hose or connector might fix large leaks, but the accumulation of many small, unidentified air leaks will have a more significant effect on electric energy costs. In fact, the U.S. Department of Energy has stated that approximately 30% of the air supply created for production is lost to leaks. Since you mentioned fixing those leaks, consider maintenance costs in your equation. An electrical actuator, on the other hand, will offer an efficiency rating that is consistent for the life of the system.

**Q:** This brings us back to maintenance and replacement. Since electrical systems have an initially higher cost of replacement, does maintenance of a pneumatic system balance out the costs?

**A:** Not at all. Typically, an electric actuator demands very little, often no, maintenance outside of an occasional re-lubrication required for some systems. Plus, electric actuators primarily use ball screw and ball bearing technology, which provides a more predictable estimation of service life based on industry-standard ball bearing L10 life calculations. In comparison, pneumatic actuators rely on tight rod and piston seals to prevent air leaks. This seal wear not only degrades the performance of the pneumatic cylinder, increasing costs, it adversely affects efficiency, force output, speed, and/or responsiveness of the cylinder as leakage increases.

**Q:** Are you suggesting that product performance varies as well?

**A:** Yes, if only because of seal wear and the adjustments a pneumatic system may require in order to maintain repeatable or accurate performance over the life of the device. Remember that any change in performance in a pneumatic cylinder directly relates to the quality and yield of the product being produced. For example, imagine a situation that requires repeatable or accurate force to complete a process. As seals wear and air pressure

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