



Is It Better to Build or Buy a Linear Positioner?

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How does a company decide the business case to build a linear positioner in-house or purchase an existing off-the-shelf technology, when it comes to industrial applications that involve high-volume, single-axis positioning systems? Use these guidelines to ensure you make the best decision.

Guidelines

Many companies think that building a linear positioner from scratch is the lowest-priced approach when high volumes are involved. At its most basic level, the decision between building and buying seems purely a function of cost and volume. The approach seems simple and straightforward because cost and volume are directly related.

Therefore, building a positioner in-house might seem to be the best option for companies that have large amounts of product demand, time, resources and money; however, engineering decisions are rarely this easy and usually necessitate considering many factors. In fact, in most cases, engineers discover whether building in-house was the right choice only **after** they are well into the development process and have invested heavily in time and money. Fortunately, adhering to the following guidelines will help ensure you make the best decision.

Considerations in building versus buying

The formula for the make-versus-buy equation needs to include many variables, and oversimplifying might lead to erroneous results; however, following this checklist helps ensure you include the right information:

- **Materials** – This is the obvious piece, and one that most people naturally include. For this variable, ensure that the Bill of Materials (BOM) is complete for all the materials needed to build the positioner in-house. Items might include hardware, bolts, fasteners, bearings, motors, drive mechanisms and other components. In addition, locating suppliers that can deliver the quality and quantity you need allows more accurate make-versus-buy cost comparisons.

- Volume** – This is the key to the equation. The volume of production has a tipping point where the total cost of designing an in-house unit (including all labor and parts costs) is less expensive than buying a unit from a supplier. The goal is to find the tipping point (shown at right) while also ensuring that it isn't erroneously moved to the left because of a miscalculation of costs. Also, while at higher volumes, it might be best to build the positioner in-house, which helps ensure integration and quality. But, spending the needed time and labor is probably detrimental when it detracts from a company's core competency and more pressing priorities. When the positioner is being used as a new product, consider the market conditions and analyze projected sales. Because demand determines volume, decide whether your facility can sustain the necessary production or if outsourcing is a more efficient option.
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- Labor** – It's important to account for time to market and lead times. Time to market includes the time it takes to design, test, and develop prototypes, as well as the months of work necessary to build a reliable, validated, and verified positioner. The other time costs are often forgotten, but weigh heavily on the equation too. These time-consuming costs include order handling for each component purchased, inventory handling for each component purchased, and Quality Assurance time for each component purchased. Also, don't neglect to factor in machining time and labor times for assembly.
 - Support** – Consider support costs and study them. These costs could include travel or inventory spares. What would the implications be when a unit fails? How long will a repair or replacement take?
 - Application** – The positioner must work well in the application. Deciding between making or buying can depend on finding a supplier with a compatible product that is customizable to your needs and works under the given environmental conditions.
 - Expertise** – As an engineer, is your time best spent designing positioners or focusing on your company's core capabilities and expertise? Companies are sometimes tempted to keep engineering in-house, but often, partnering with a supplier that specializes in positioners reduces risk, costs, time to market, and frustrations.
 - Risk of ownership** is an important business consideration. When building a positioner, a company assumes all the risks from concept to product launch. When buying a positioner, a company should choose a reputable supplier that has already thoroughly tested the product to help reduce risk.

Following this checklist ensures you have the right information to decide to build or buy your next linear positioner. If you need help, gives us a call at 800-245-6903.