Article of Interest
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Business Benefits of Standardizing on Configurable vs. Custom Components

By
Patrick J. Esposito, Marketing Manager, MISUMI USA

Even in a tight economy, machine building OEMs can find new ways to reduce costs and maximize profit margins, while improving quality and customer service.

Virtually all industrial plants rely on automated machinery and systems for their core operations and this equipment is critical to the company's efficiency and productivity. Yet, in this difficult economy, the companies responsible for designing and building motion control and automation equipment for industrial manufacturers and processors are constantly being pressured to hold their prices in check, while still delivering the quality, performance and reliability their customers expect and deserve.

This can be a tall order, especially when many machine systems must be sized and customized to the applications and specifications of a diverse group of end users. In fact, a plethora of mechanical and motion control components are intrinsic to the design of factory automation machines and systems—whether they are destined for use in high-speed production cells, fastening and assembly equipment, conveyors, work-holders, testing or quality control equipment.

The Trend Towards Standardization

One growing trend among leading machine manufacturers is the concept of standardizing wherever possible, using configurable rather than custom designed machine components—and outsourcing the production of these configurable components to qualified suppliers. The advantages to be gained by replacing custom parts with precisely made configurable mechanical components can be quite significant and can have a favorable impact on a machine builder's bottom line.

MISUMI's highly popular LX Series Actuators are used extensively in motion control applications for machines manufactured for factory automation and assembly operations.

So, the question is: Is custom component design really necessary? Because so much of the engineering process requires customization and/or application-specific functionality to meet each customer's automation system requirements, traditionally there has been quite a bit of custom component design and tooling or fabrication involved. And, for most machine builders, design engineering and modifications is one key area where time and costs can mount quickly, resulting in shrinking profit margins and extended product development and delivery times.

Another area that can quickly escalate a machine or system's cost structure—and often delay its delivery—is the custom machining that is frequently required after the fact to meet extremely precise dimensional specifications. Whether this work is performed in an in-house machine shop or by an external job shop, the time and costs can add up quickly.

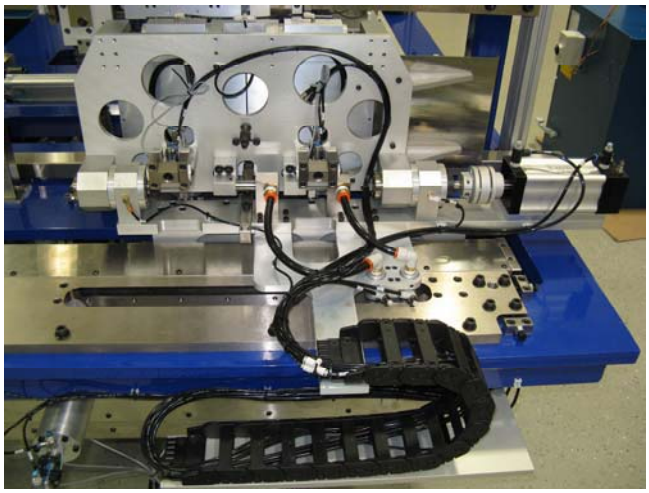
These are exactly the areas that a part standardization strategy is meant to address. In a majority of cases, it is both possible and practical to replace previously custom-tooled mechanical parts and replace them with configurable components sourced from a qualified business partner with the expertise and resources needed to provide them at a competitive price and within short delivery timeframes. Let's take a closer look at how standardization and the use of configurable components can provide significant value.

Configurable Components Can Reduce Time and Costs

Understanding the concept of configurable components is relatively simple. No matter how specialized the design, most automated machines and motion control equipment are typically comprised of a vast number of individual components, such as linear shafts, shaft supports, linear actuators and guides, bushings, bearings, locating pins and ball screws. They may also include extrusions, machined steel plates, gears, rods and pipes, cylinders, and a wide range of fasteners and other hardware.

High quality mechanical component suppliers have the ability to configure these types of components to extremely precise specifications relative to dimensions, materials, machining options and surface finishes. Once designed and configured to the end user's specifications, in many cases, drawings can be downloaded from the supplier's site as native CAD files, then standardized within a customer database and given a unique part number for easy reordering via the supplier's catalog or web ordering site.

This eliminates many of the complex and time-consuming activities typically associated with custom part design—the creation of multiple iterations of engineering drawings, for example—and frees up an organization's engineering resources to increase their productivity and move on to other new, profit-generating projects.



The high performance automation solutions built by Genesis Automation of St. Charles, IL, often include a high percentage of configurable components from MISUMI, including shafts, bearings, plates, stands, ball screws, fasteners, couplings and actuators.

In addition to reducing engineering time and costs, standardizing on configurable components over custom designed parts frequently reduces the component costs as well, by eliminating or at least minimizing the machining typically associated with custom part production. Whether final machining is performed in-house or contracted out, it adds yet another process hand-off that all too frequently results in delayed customer order fulfillment. And, from a serviceability standpoint, standardized configurable parts make it easier to assemble and/or reconfigure shop floor systems on-site and also to replace machine parts as needed to keep equipment up and running efficiently.

To sum up, some of the time and cost benefits many leading machine builders have realized by replacing custom-built automation system components wherever possible with standardized configurable machined components include:

- Reduced engineering and build time by up to 60 percent, resulting in greater efficiency and faster time-to-market
- Cost savings of up to 50 percent over the cost of in-house or custom production and machining
- Greater modularity and flexibility of systems and interoperability of parts, as well as more consistent product quality and appearance

Business Value Across the Enterprise

So how does adoption of a standardization and configurable component strategy affect the overall business and corporate objectives? For one thing, the cost savings and engineering productivity gains can have a positive impact over time on the company's profit margins, cash flow, return on assets, and competitive advantage.

Also, by selecting component suppliers that offer shorter lead times—typically days rather than weeks or months—machine manufacturers find they can maintain lower parts inventories in favor of just-in-time procurement, which also contributes to positive cash flow. In addition, they often experience faster time-to-market and increased customer satisfaction by being able to hold more closely to their order fulfillment schedules and promises.

Finally, many design engineers have noted that the growing availability of configurable component categories provide a boost to their creativity, giving them a greater range of innovative, yet affordable, design options to consider for each project. This strategy shift can potentially pave the way to pursue new opportunities that may previously been considered too costly and time-consuming to undertake. And, as we all know, innovation is one of the most desirable qualities for a manufacturer to nurture—especially in tough economic times.

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About the Author

Patrick J. Esposito, Marketing Manager for MISUMI USA, has over 25 years of professional experience in the industrial manufacturing and medical marketing sector. He has held executive positions in Product Management and Sales and Marketing Management, and has authored numerous articles and white papers for a wide range of industrial trade publications.

About the Company

MISUMI USA is a leading global supplier of fixed and configurable mechanical components used in the design and manufacture of factory automation machinery and systems. For more information, visit http://us.misumi-ec.com.