



## Custom parts vs. standard part—demystifying the debate

By Eric Leclair

The push for standards in today's marketplace certainly does have its advantages. Using standard components makes it easier to manage inventories, and helps facilitate technical support and customer service. For example, if you have only one type of screw in your assembly, and a customer calls to say he is missing one, you'll know what to send him without forcing him/her to guess what the TPI (thread per inch) is. It can also help streamline your parts vault, because let's face it; nobody enjoys the task of controlling revisions.

way to design new products. While standard products are more readily available than customized solutions, they may not always be cheaper or the best solution for your particular application.

Deciding whether to go with a customized part or a standard off-the-shelf solution may seem easy enough, but there are many factors to consider before making that decision. And what you'll probably discover along the way is that the difference between a standard and a customized part is not always as clear-cut as you may think.

We worked with a company recently who were using

### The standard compromise

The above example illustrates an important fact about standard parts – that they are all compromises. Standard parts are designed to handle a wide range of applications, with both technical and economic considerations in mind. But no single part can possibly handle all of the relevant applications.

For example, is one of the specifications you're looking for a, "nice-to-have", or is it a critical aspect of the part? If the latter is true, you'll have to forego the typical advantages of a standard part and go with a custom-built solution.

# innovation

These are just some of the reasons why large firms try to force "standardization" upon their designers and engineers. But the main reason is that industry standards tend to limit risk, since commodities are always available from multiple sources. It also mitigates the risk of product inconsistency, short product lifecycles and overall reliability since standard parts tend to have a proven track record among many different applications.

However, the quest to standardize components has some companies believing they've found a faster and easier

three different standard parts for their line of garbage compactors: one extrusion & two types of stripping. No one part could be used for all their products because one of the parts couldn't withstand the required pressure and another had to be machined to fit the application properly.

We managed to consolidate their three parts into one customized extrusion and then showed them how to make their own custom gaskets that actually improved the water tightness of their product, while decreasing their inventory and streamlining their production process.

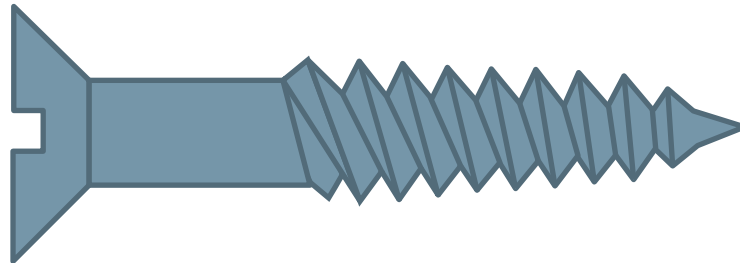
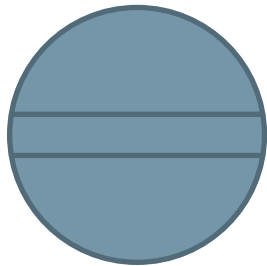
### The semi-standard solution

Custom parts don't always have to be built from the ground up. It is often possible for your supplier to adapt a standard solution to meet your application's specific needs. These are referred to as "semi-standard" parts. Many of today's custom-built parts have some standardized features – a growing trend that may well offer you some time and cost benefits. It only makes sense to see if a standard solution can be adapted before opting for a fully customized alternative.



Ease of reconfigurability is another issue to consider when weighing your options. It's important to know whether the standard part you're choosing can be adapted to accommodate changes during production. Let's say you are evaluating parts from two separate manufacturers (X and Y). Both can handle your application, but part X is cheaper. Part Y, on the other hand, is more easily adapted to handle changes in the part and/or changes in the final product. Which one should you choose?

Custom solutions are often best suited to providing enhanced features and functions that match exactly with the OEM's equipment and application requirements – without compromise. The following considerations will assist you in the evaluation process when deciding between custom and “off-the-shelf” standard parts.



#### Caveat Emptor (Buyer beware)

Pseudo collusion in some industries keeps prices stable, even though costs may be decreasing. So keep in mind that the price you are costing at might not be fair market price and may just be the “going rate”.

Here is another insider for you. Standards usually mean stock, which in turn means increased cost. Procurement and supply chain professionals know this as the carrying cost. It encompasses the cost to warehouse, heat/cool, and insure

the product you want to buy off the shelf. On average, this could mean a direct cost increase of approximately 20-30%, not including the mark up on top of the inflated base cost.

Even more important than the cost is the fact that standards may limit your design, and hold you back from coming up with something new and creative. One of the most popular buzzwords among design and engineering departments these days is Innovation. But it's pretty difficult to be innovative when you're told to spec standard parts “Fit, Form & Function” and to make sure you get them at the lowest possible price.

Custom parts usually require tooling to create whatever it is you have designed. Tool ownership remains the intellectual property of the designer, and therefore may allow you to trademark or patent any new design or

product improvement. Keep in mind that custom parts can provide a competitive advantage, deliver benefits to your customers and improve your company's overall image.

But tooling costs can be high in certain cases, and so the volume of parts purchased must outweigh the up-front costs of tooling and engineering. The advantage to this, however, is that these charges can be claimed as R&D and written off as a tax-deductible expense.

One thing to keep in mind; and this goes for most

projects that will have a lasting impact on your products and services, is to give yourself enough time to work around the lead times, and worst case scenarios. Depending on what type of tooling/product you are looking to customize, you can expect lead times anywhere from two weeks to six months depending on the complexity of the project. The best value is usually found in the longer lead time, so you will need to plan for it.

Your custom part may cost more in the end design, at the component level. But do a cost analysis on the completed assembly a few levels up your BOM (Bill of Materials), and if you have married “standard processes” instead of “standard parts”, you will definitely see that the cost is competitive if it wasn't already from the start.

One of the sure-fire ways to have a new design accepted is to consolidate numerous existing parts as retro-fits into your design, and then convert your new custom parts into standards in your parts vault. These strategies will help turn your “standard assemblies” into micro niche products without much effort in the long run.

Be sure to choose a strategic partner, and not just a supplier. They should be willing and able to work with you to choose a standard that meets your requirements rather than changing your requirements to meet the standard. In the latter case, a custom part may be the best choice. A good supplier can also mitigate the risks of source of supply and longer lead times through the use of the Just On Time delivery™ techniques.

To sum up, it is advisable not to go “off-the-shelf” just for the sake of standardizing, unless you're sure it's the best solution for your application. Innovation is the lifeblood of any successful organization, so how will your company distinguish itself in a world of carbon copy products?

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