Henry Ford once wrote “Any customer can have a car painted any color that he wants so long as it is black.” An early adopter of mass production, Ford tuned his assembly lines to churn out one low-cost standard product after another in a batch run.

In the caster industry, mass production has decreased the cost of standard casters for every day applications. However, many manufacturers still require custom-designed casters with higher performance specifications or special sizes to optimize their processes. Until now, they had to choose between ordering an expensive custom manufactured caster with long lead times or force fitting a standard caster to their application.

Caster Concepts is changing that model. A leader in innovative manufacturing, Caster Concepts is going Beyond Standard by providing customized solutions designed and manufactured to meet unique applications but without the long lead times usually associated with custom manufactured product. “We don’t believe in making our customers conform to our ‘standard’ products,” says William Dobbins, president. “Instead, we give our customers the flexibility to conform our products to their application.”

What makes this possible is mass customization, a revolutionary approach to manufacturing that brings the efficiencies and cost savings associated with mass production to the world of custom manufacturing. Caster Concepts is the first caster manufacturer to invest in specialized equipment that minimizes set up time and is flexible to a variety of processes. This allows Caster Concepts to mass produce customized products in small batches while reducing lead times by 50 percent.

“We can reduce the lead time required to deliver a finished custom caster to days instead of weeks and at a price point near the cost of a standard product,” says Dobbins.

From mass production to mass customization
Mass customization represents the next step forward in the evolution of manufacturing.

Mass production was the first step. In the near century since the introduction of the Model T, the mass production revolution has brought the cost of manufactured products within the reach of most of the population. Still, there has always been a demand for products with special performance characteristics. Meeting those specifications with custom manufacturing often involved a significant amount of costly handwork and additional time.

Today, manufacturing finds itself in a new situation, driven by consumers who are demanding the best of both worlds: Customized products that go beyond standard to address their specific needs but at a price point that is competitive with mass produced products.

That’s where Mass Customization comes into play. The concept has been described as “enabling a customer to decide the exact specification of a product or service, and have that product or service supplied to them at a price close to that for an ordinary mass produced alternative.”

In mass production, the vendor offers a product on a “take it or leave it” proposition and at a low upfront cost. Mass customization, on the other hand, enables a customer to decide the exact specification of a product or service at or after the time of purchase, and have that product or service supplied to them at a price close to that for an ordinary mass produced alternative. The idea is to apply mass production techniques that have been refined over the past century to a production run of as few as one.

Caster Concept’s laser cutting process.
In the consumer world, mass customization makes it possible to produce iPods in a rainbow of colors, with a variety of storage capacities and with special features such as engraving. In the industrial world, mass customization makes it possible for Herman Miller to produce one built-to-order Aeron chair in 10 million different configurations every 16 seconds.

**Mass customization and casters**

The industrial caster business has benefited over the years from the mass production of casters. Today, standard casters are made by the millions in low-cost regions and imported by the ship load to customers in the U.S. to fit their needs for the standard product. These casters are made in large lot sizes and assembled in an automated fashion to minimize cost and to provide a very uniform, cost competitive product line. “The product lines are made with stampings and to minimize the cost, you stamp them out in high volumes,” explains Dobbins.

For many applications, these mass produced casters provide an effective, low-cost alternative to domestically produced standard products. But what happens when a standard caster isn’t right for the application? In that instance, the customer who purchases the low-cost product adapts their needs to “fit” the standard caster specifications. In a perfect world this would work effectively if there was a standardization of caster specifications and all manufactures followed the specification matrix. The problem is, many manufacturers want to have their own “standard” that locks out the competition from their customers’ applications and, in turn, increases the margins for the manufacturer.

As an alternative to the standard, industrial caster manufacturers have developed the special and custom caster market to create a product that fits their customers’ needs. That often involves having iron workers and welders reconfigure the standard components to make the caster frame and meet the new specifications. While these customized casters might get the job done, the final product may take three to five weeks to complete and has the appearance of a science project while leading to a shorter product life cycle.

Caster Concepts has a better solution: Mass Customization. With the use of the most modern manufacturing machinery and lean manufacturing principles, Caster Concepts is able to provide the customer exact application specifications at a price that is in range of a mass produced price in many, if not all, of its product lines. Using laser cutting and press brakes as opposed to stampings and iron workers, along with a make to order philosophy, Caster Concepts can not only control the costs but deliver the product that best fits the customers’ applications rather than adapting the application to fit the product.

“We use zero stampings,” explains Dobbins. “Instead, the caster is designed in CAD, followed by an engineering process to verify that the design will meet the carrying capacities and speeds required for the application.” After the verification step, the components of the frame are cut in the laser. “In the past, we did a lot of welding from one component to the next,” Dobbins says. “Now, we cut the part on the laser and form it to the final configuration before it’s welded to the swivel section.”

According to Dobbins, the new process takes 60 percent of the welding out of the process. A formed part is stronger than a welded part, since there are no welds that might fail.

Finally, Caster Concepts can provide a choice of five different types of polyurethane on an as needed basis. “It doesn’t matter what type of core goes on the caster,” says Dobbins. “We can pour a high variability of wheel sizes with the same urethane on them.”

With the integration of electronic scheduling and management of raw materials, the speed to market is competitive with the “standard product” delivery time. Caster Concepts can deliver a mass customized caster in seven to ten days, instead of three to five weeks.

“There are customers for whom a standard caster will get the job done,” says Dobbins. “But at Caster Concepts, we’re providing a higher level of value to the customer. If their process requires special heights, speeds, carrying capacities, durability, life cycle or some other attribute that has to do with overall performance, we can provide a product at a price that’s within reach without them compromising on their requirements.”

That’s how Caster Concepts goes beyond standard with mass customization.

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*Caster Concepts are experts at solving unique mobility problems and are willing to engineer a solution to meet your custom specifications. If you don’t see it... ask us! We’re known for going beyond standard.*