

Take Another Look at **Fourslide**

In an era of smaller lot sizes and JIT manufacturing, fourslide production can cut part costs, speed product delivery and streamline quality assurance.

Slideforming, a venerable process where a system of cam-controlled tools produces small simple or intricate parts from coiled sheetmetal or wire, is re-emerging as stampers and

their customers experience greater product customization, shorter product lifecycles, smaller lot sizes and higher material prices.

Such is the case with Fourslide

Spring and Stamping, Inc., Bristol, CT, which recently won part contracts precisely due to the inherent benefits of fourslide production.

The company manufactures spring and wire products including precision flat springs, metal stampings, contacts and wire forms more for medical, electrical, automotive, aerospace, military, consumer and industrial applications.

Minimizes Tooling Build, Maintenance Costs

DFCI Solutions, a manufacturer of specialty fasteners and hardware seeking to expand its European market share with the launch of several new products, first looked to travel the traditional stamping route but quickly found fourslide, and Fourslide Spring and Stamping, as a better alternative.

“To get our foot in the door we needed very low prices, and to keep the business we needed very reliable product with just-in-time delivery,” says John Suchopar, DFCI Solutions plant manager. “But power-press tooling costs were exorbitant, and the lead times to construct dies were six months. That was unacceptable. We had to minimize upfront tooling cost, especially when



These parts all resulted from the fourslide process as performed at Fourslide Spring and Stamping, Bristol, CT. The process boasts production rates to 15,000 pieces/hr., depending on part size and complexity. Fourslide production can dramatically decrease tooling costs and lead time compared to traditional stamping in certain applications, and since the process typically starts with material the width of the finished part, it generates minimal scrap.

we weren't sure how long a particular product would last in the marketplace. Because the four slides move independently along two axes, they can precisely bend and form our parts without the complex tooling required of stamping presses. Combining forming with stamping in one operation with fourslide, we saved about 75 percent in tooling costs, and about 25 percent in total part costs."

Moreover, Suchopar was looking for part production that would simplify part revision and the cost of tool maintenance, another benefit of fourslide production.

"Since fourslide reduces tooling cost and complexity, it has simplified part revision, as well as tool maintenance and the expensive downtime related to that," adds Suchopar.

The fourslide process also compressed production lead time to a relatively short eight weeks.

"Fourslide has plenty of speed for our needs," says Suchopar. "We'd set a deadline and would receive a part shipment from Fourslide Spring and Stamping a few days earlier. Recently, we've shifted five products, including clips, brackets and a line assembly cage, from traditional stamping to the fourslide process, and we'll be shifting more."

Why Fourslide Excels

While the fourslide part-making process previously found use primarily for complex work that involved forming, multiple bends or elements beyond 90 deg., it is employed more and more as an alternative to stamping in certain applications. From precision metal stampings, flat springs and wire forms to complex forms with multiple bends, if a stamped or formed part is less than 2 in. wide and 0.075 in. thick, fourslide is a production option, according to Fourslide Spring and Stamping officials.

The fourslide process can cut tooling costs, halve tooling lead times and eliminate after-production adjustments to meet specifications due to its unique integration of stamping and forming operations.

The process begins with the raw

material in flat strip form off of a coil. The material is stamped or blanked in the progressive-die section of the fourslide machine, then fed into the forming section. Here, four tool-carrying slides approach the part from the north, south, east and west, forming the material around a center tool or mandrel, with the setup of the machine cams determining the sequence of tool strikes. After forming, the finished part

ejects into a parts catcher.

Fourslide machines, with built-in cams and slides, eliminate the need for costly, complex tooling typical in some traditional stamping applications. With the fourslide process, precise multiple bends, twists, tapped and threaded holes, even controlled burr direction and location, can be accomplished in multiple operations before the part ejects. The process boasts production

rates to 15,000 pieces/hr. depending on part size and complexity. Since the process typically starts with material the width of the finished part, it usually generates less scrap than traditional stamping, thus lowering material costs.

Lower Material Costs, Better Quality Control

Material cost was a major concern for another Fourslide Spring and

Stamping customer, Control Products, Inc., which makes thermal and water-proof switches. The company aimed to streamline its quality-assurance process and hold down prices despite rising material costs, and found fourslide a good method for doing just that.

Control Products was challenged by material memory because stock had to be properly straightened from rolls in order to prevent springback.

“Every lot of material presented a problem in consistently holding an angle or two on production parts,” explains Glenn Heimroth, Control Products quality assurance manager. “The parts weren’t complex, but assuring accuracy was critical.”

He notes one switch that must actuate every time a flat spring was depressed 0.5 in. within a certain tolerance.

“If the springs were inconsistent, we had to adjust our finished goods by hand—time-consuming and expensive,” says Heimroth.

Looking for greater part consistency, especially given the fact that final assembly of inconsistent parts was proving difficult and expensive, Control Products turned to the fourslide process and Fourslide Spring and Stamping.

“We now get the parts consistently right, on time, at lower cost,” says Craig Morse, Control Products purchasing manager. “As a result, we’re shifting some high-volume work from stamping to fourslide.”

Fourslide Spring and Stamping was able to resolve quality-assurance issues such as that and also tackle cost issues, according to Morse and Heimroth. For example, the accuracy and operational flexibility of the fourslide parts enabled the tooling for right and left-handed switch covers and brackets to be combined in the same tool, effectively saving the cost of an entire tool. The process also has reduced material scrap.

To further lower part cost, mitigate escalating material costs and streamline inventory management, Fourslide Spring and Stamping allowed Control Products to buy in bulk and schedule needed shipments over a two-year contract period.

Concludes Morse: “For anyone having trouble keeping prices down, getting consistent parts or maintaining tooling, switching to fourslide can be cost-effective.” **MF**

Information for this article provided by Fourslide Spring and Stamping, Inc., Bristol, CT; tel. 800/832-6405, www.fourslide.com.