ENews

MAKING THE MOVE TO FOURSLIDE

The fourslide part-making process offers several benefits versus the traditional power press. Here's how to decide if and when to take advantage of it.

Named for the four tool slides that perform stamping and forming operations, the fourslide process offers several benefits over the traditional power press when it comes to making parts. Fourslide manufacturing begins with the raw material in flat strip form off a coil, which is stamped or blanked in the progressive die section of the fourslide machine. The strip is then fed into the forming section, where four tool-carrying slides approach the part from the four cardinal compass points, forming the material around a central tool or mandrel. The setup of the machine cams determines the sequence, timing, and number of tool strikes.

Among its advantages: the cost-effective manufacturing of complicated forms, reduced production expenses, speedier product delivery and wide latitude to modify forms without a steep monetary penalty.

The following considerations can help any engineer determine when to exercise this additional manufacturing option.

A Low Production Budget Means More Money Saved

When seeking to keep project costs in containment, obtaining parts from a source that employs the fourslide process offers some advantages. Because the four forming tools are tool blocks carried by the slides, and forming is accomplished by the ability of the tools to approach from a variety of directions, these tools can be machined for a fraction of the cost of complicated power press dies that must include actuators within the tool itself to perform these forming functions.

As a result, tooling for power presses can cost tens of thousands of dollars, while fourslide tooling typically runs a fraction of that, making the fourslide tool more economically justified.

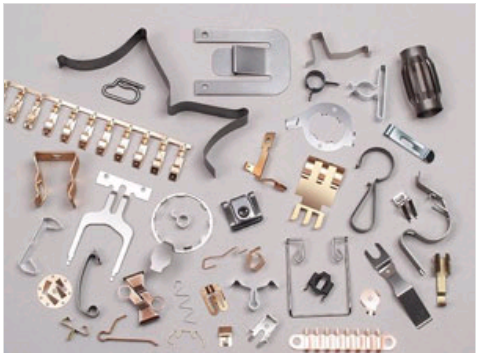
Such savings extend to material costs, as well. Since the fourslide process starts with material the width of the finished part, less material is wasted.

Complex Forms Made with Complex Motions

Because of its unique integration of compound forming operations, the fourslide process can execute multiple bends, bends beyond 90°, twists, cylindrical forms, and tapped holes before the part is ultimately ejected. This capability yields precision metal stampings, flat springs, wire forms, contacts and other complex forms for a wide range of medical, electrical, automotive, aerospace, military, consumer, and industrial applications.

An up-and-down power press cannot bend a part beyond 90° unless actuating mechanisms are added within the tool. With the extra cams, lever arms, and cylinders, a power press tool can become complicated, expensive, and costly to maintain. On the other hand, the fourslide process can perform additional bends with the second, third, fourth, or fifth, slide, each of which is carrying a tool block.

Machining Simplicity Reduces Lead Time



The simplicity in machining fourslide tools, versus the time-consuming complexity of power press tools, translates into a significant reduction of lead times approaching 50 percent or more.

By the same token, the straightforward motion of fourslide tools simplifies laborious after-production adjustment often encountered with

power press tools, further speeding the initial delivery of product.

These are classic fourslide parts featuring multiple bends and complicated shapes that make other processes cost prohibitive, due largely to tooling costs

Design Changes? No Problem

If a product is subject to the changes of the commercial market, changes in technology, or even the arbitrary demands of a specific customer, then the fourslide process represents an alternative for part manufacturing.

The same rule applies when “first-article” runs don't come out as expected, and a part revision becomes necessary.

The modification of a power press tool can turn into an expensive process. In the case of a die, a whole new one may have to be built. But, in a fourslide operation, part modification costs less because the tooling costs less.

Quantifiably Advantageous

Capable of production rates of 15,000 pieces per hour – depending on part size and complexity – the fourslide process has been employed to produce part runs numbering the tens of millions.

While the economies of scale enabled by a power press and a die cannot be denied, the steep investment in the creation of the die must be taken into consideration. It can take millions of pieces, and years, to recoup the cost. Only the largest of manufacturers can suffer such long amortization periods.

Fourslide holds the advantage below the million mark because of the low cost of the tooling.

Know Your Material

If a product only requires lightweight stamping, then no reason exists to use a hulk-sized power press.

As a rule of thumb, any material less than 2" wide, less than 0.075" thick, and within 15" in blank length, can use the fourslide process. Blanking demands, as well as the hardness of the material, exert some influence on these figures.

Of course, when it comes to heavy-duty jobs exceeding 25 tons overall, the advantage tilts back to the mightier power press.

To view an animated demonstration of the fourslide manufacturing process visit www.fourslide.com/fourslide-reference.htm .

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