

One transfer, please

Transfer technology helps create complex parts

By Dennis Boerger

Manufacturing trends, particularly in the automotive industry, are requiring stampers to produce complex parts from thinner and stronger materials than previously used. While this combination makes parts more difficult to stamp, transfer technology can help stampers overcome these production challenges.

In addition to its ability to do more than stamp simple parts, a transfer press allows manufacturers to manipulate the part during the production process, such as turning it over or tilting it for multiple operations. Current transfer press technology production output levels are challenging or exceeding rates achieved by progressive-die presses. Reduced material waste is another advantage of the technology.

For stampers considering purchasing transfer equipment, part complexity and production volume are

the two biggest factors to consider. Another consideration is finding a press builder that can provide automation and ancillary equipment, as well as integration services, installation, runoff, and postinstallation support.

It's a Just-in-time World

For large, complex parts or just-in-time (JIT) manufacturing, transfer presses can be an effective choice. Transfer presses equipped with link drives, cushions, and programmable transfer feed systems can provide improved flexibility and increased productivity for JIT production.

To reduce downtime caused by production problems, the press should be able to improve the uptime-to-downtime ratio by shortening the time required for a die change and speeding up production.

Modern transfer press equipment is designed to combine fast production speeds with quick die change and continuous blank feeding. In

some instances, all components of the transfer system, including the transfer device and blank supply device, are manufactured by the press builder. These components can be balanced—all control and software technologies integrated to work together.

Key elements to increasing productivity for JIT are sensing and correcting double-blank misfeeds and reloading without stopping the press. This type of sensing technology features a blank discharge device that automatically discharges the extra blank when a double blank is detected.

On presses outfitted with a blank holding device, blanks automatically are held while the blank stack is changed—eliminating the need to

stop the press while changing stacks of blanks. Assisted by the appropriate software, a die change on a 2,500-ton press can be performed in less than five minutes. Off-center load-bearing capacity in such transfer presses can offer flexibility in die design and layout because not all die stations require the same load. By designing the press to accept high off-center loads, less attention can be paid to balancing loads in all tooling stations.

Automation for the Presses

Stampers considering automated press systems might focus on progressive-die presses, which use coil feeders, or transfer presses, which use transfer feeds. Traditionally, transfer presses have been straight-side. In a line with two or more straight-side presses, one press can be run alone, or when extra tooling is required, the presses can be run as a single large transfer press by initiating the intermediate stage between



Figure 1

In a line with two or more straight-side presses, one can be run alone, or when extra tooling is required, the presses can be run as a single large transfer press by initiating the intermediate stage between the presses and running the equipment in a continuous, synchronized operation.

the presses and running the equipment in a continuous, synchronized operation (see **Figure 1**).

For part orders that are large but not large enough for a dedicated transfer press, a third option is to combine a gap-frame press with an automated transfer system. Though slower than progressive-die operations, gap-transfer operations can offer several advantages (see **Figure 2**), such as higher material yields from nesting multiple blanks.


Unlike progressive-die presses, gap-transfer presses don't require one end of the product to be connected to the coil during the form-

ing process. This gives stampers more freedom because another part can be manipulated between presses in complex forming operations. Die structure is simple because the part is conveyed in midair—no lifters are required in the dies—between stations without touching the dies.

A gap transfer system is a flexible option with an investment of one-third that of a dedicated transfer press system. Easy to expand, a gap-transfer line retains the advantages of a transfer press yet it does not require a lot of accessory equipment. Standard gap-frame presses do not require a pit, so press layout is easy to change

(see **Figure 3**), and transportation and rigging costs are reduced.

Servo technology can give stampers the ability to run a multipress transfer line in continuous mode. When compared to a conventional gap-frame press line that operates in automatic single-stroke mode, servo presses' continuous mode can deliver productivity rates up to 50 percent higher.

Regardless of a job's size or complexity, transfer technology in its various forms can offer stampers flexible production options. Understanding a job's requirements and making the right equipment choice can help a stamper meet the marketplace's demands while maintaining a competitive edge. 

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Figure 2

Transfer operations can be performed in a manufacturing cell using one- and two-point gap machines grouped to provide additional tonnage and increased bed area.

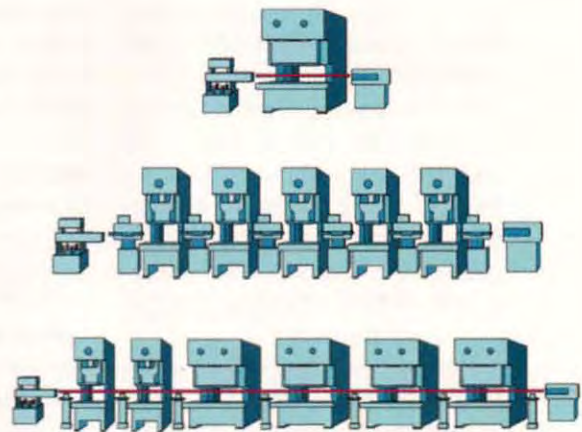


Figure 3

A gap-transfer system gives stampers the flexibility to connect as many gap-frame presses as they need—for example, expanding an 800-ton line to a 1,000- or 1,200-ton line—for new jobs.