

How to optimize press selection

Identifying a press supplier that can act as a true technology partner may be as important to a stamper as the equipment needed to produce parts

BY DENNIS BOERGER

The advancement of part technologies and the materials required to produce them has driven the evolution of press technology and created a need for a new kind of partnership between stampers and their suppliers.

At one time, most stampers employed experts with the ability to analyze and identify equipment needs. Today's lean manufacturing practices have all but eliminated that type of dedicated internal support. As a result, stampers find they require suppliers that can not only provide the right capital equipment but also possess the application engineering expertise to evaluate all processes to help achieve optimum output for maximum profitability.

The design and layout of a stamping system or cell generally involves three basic elements: the raw material, the die and its configuration, and the press. Today, the criteria for assessing jobs and their required manufacturing processes, the variety of materials being used and the production solutions available have evolved, expanded and become much more complex.

A once simple checklist has grown to include a large number of factors beginning with the type of material best suited to the job; proper tooling; a fundamental understanding of the formability of the metal to be used; which press model offers the ideal slide stroke or motion for optimum output; lubricants; the type of automation that can complete processing with the

fewest number of human hands touching the part, as well as the least amount of scrap; and finished part handling. In addition, stampers face the added challenge of keeping pace with next-generation breakthroughs in processing, materials and equipment.

What is needed

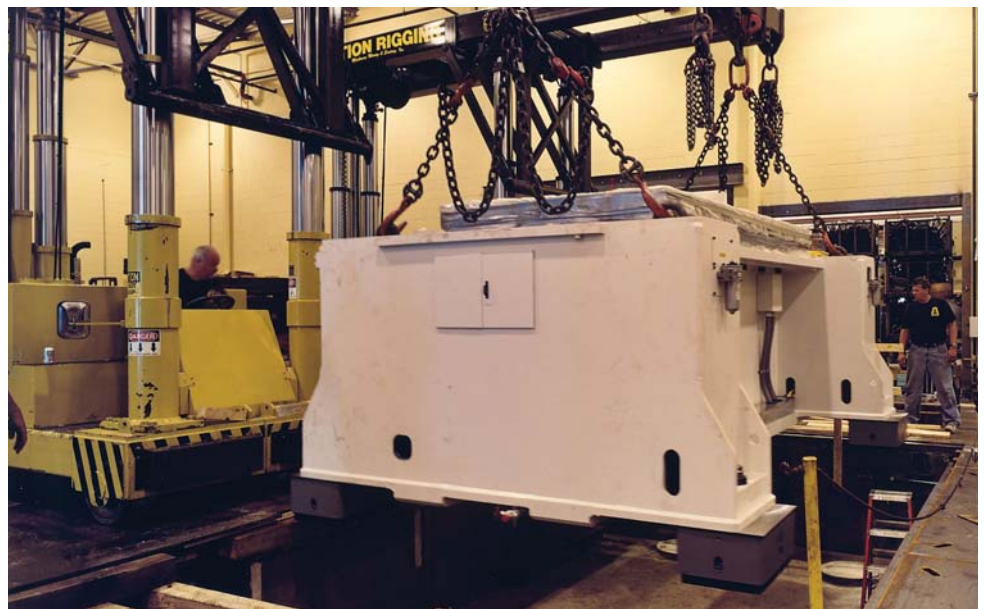
The automotive industry offers one example of how these changes impact stampers. Fuel costs continue to push manufacturers to produce lightweight vehicles. To meet this goal, stampers are turning to thinner yet stronger materials such as high-strength steels and exotics including magnesium and certain aluminums. In-

creasing demands for tailor welded blanks, assemblies and systems versus individual parts, electronic and electrical systems and a broader product offering to serve niche markets are also defining the automotive industry in terms of metal-forming and stamping.

This movement away from more traditional mild steels toward high-strength materials means stampers must consider bigger presses with larger tonnage capacities. Press bed sizes have also gotten larger to accommodate the multiple operations needed to complete part production.

Presses capable of running longer dies with multiple stations must in turn be equipped with features such as wide-

Aida uses two 100-ton cranes to lift the 253,000-pound bed of an Aida SMX-1,500 ton straightside press onto a customized trailer in preparation for a move across state lines.



spaced connections to resist the effects of tipping under off-center loads. This capability allows stampers to meet industry demands for larger, more complex parts without affecting press stability.

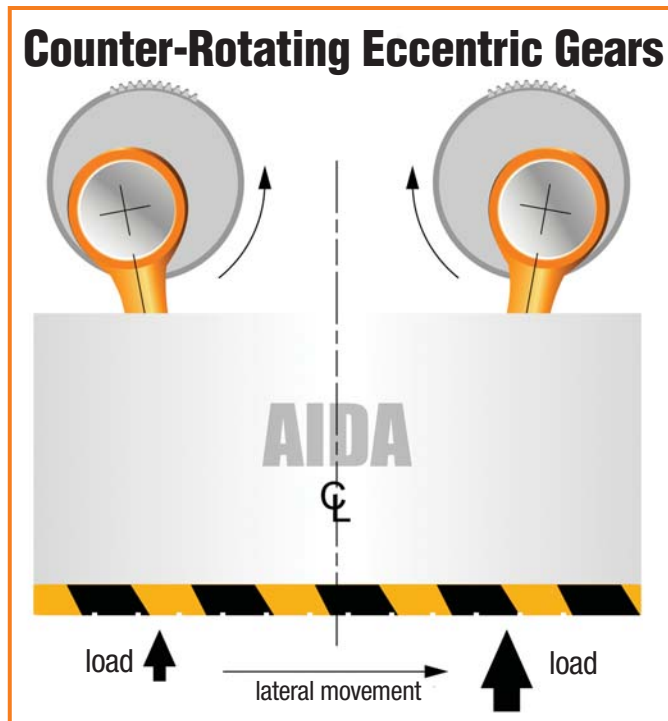
Because multiple blanking operations give manufacturers the most effective use of material, the industry is also seeing an increased use of transfer presses instead of progressive die presses. To help stampers achieve the necessary production speeds for greater efficiency, some transfer presses are equipped with the ability to change the motion profile for the transfer pitch, the transfer bar clamp motion and the lift motion.

Wider capabilities possible

Transfer presses also lend themselves to the production of complete assemblies due to their larger bed size and ability to accept wide materials. Transfer presses with eccentric load bearing capacity give stampers the flexibility they need in the design and layout of dies for production of these assemblies.

The availability of tailor-welded blanks has made it possible for stampers to increase material thickness where additional strength is needed. This manufacturing process eliminates the need to add weight to the entire part. Less weight means reduced part costs without sacrificing strength. However, using a transfer line to process these blanks with their thickness variations increases the complexity of tooling and automation systems.

As items such as onboard global positioning systems become more common, stampers are being asked to produce



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ature electronic parts.

Stampers must be able to provide a broader range of parts in small quantities to meet ongoing growth demands of niche markets. Quick changeover is a critical ingredient to the successful production of diverse parts in low volumes. But quick changeover must address much more than the ability to switch dies. Every aspect of the production system must be considered.

In addition to fast die changeover, stampers must be able to quickly change material blanks or coils as well as part and scrap handling systems. Transfer presses that offer total transfer solutions are the best choice for this type of production. A blank destacker with the ability to sense and correct double blank misfeeds and reload without the operator having to stop the press is another key element to successful production.

Finding a partner

Ongoing technical evolution coupled with the fact that most stamping job shops no longer maintain in-house engineering expertise, means stampers will have a difficult time maintaining an understanding of the increasing number of variables affecting the design and layout of manufacturing cells. That's why identifying a supplier that can

act as a true technology partner may be as important to a stamper as the equipment needed to produce parts.

Stampers can avoid costly capital equipment mistakes and eliminate gues-

more electronic and electrical systems. High-speed presses offer the best production solutions to support the manufacture of components for electronic options, onboard diagnostics and motorized features being integrated into today's au-



Transfer presses with eccentric load bearing capacity give stampers the flexibility they need in the design and layout of dies for production.

tomobiles. High-speed press models are available that can operate up to 2,500 strokes per minute. Such press speeds are especially suited to production of small intricate parts and precision mini-

stamping

work by teaming with a supplier that can act as a total technology partner. In addition to being application engineering experts, suppliers also should be able to provide a broad product offering and act as a single source for the press, automation, ancillary equipment, integration services, installation, runoff and post installation support. This simplifies the selection process as well as the purchase through installation and run-off procedure for the stamper.

Stampers can define a supplier's engineering application expertise by its ability to provide turnkey solutions that function to specification from concept through the first production run. The supplier also must be able to offer integrated automation, on-time delivery, certified safety and regulatory compliance, and startup supervision.

Equally important is the ability to execute a move from initial planning and scheduling through rigging, erecting and on-site installation. A supplier's capability to offer a broad scope of multimodal



A gantry crane lifts the 255,000-pound crown of the SMX 1,500-ton straightside press from the trailer to a specially designed dual-lane transporter, which lessens impact on roads and bridges due to the fact its axles are configured side-by-side instead of running the width of the trailer.

transportation services, expertise with less traditional loads and an in-depth understanding of the steps required for successful deliveries is a key ingredient of any press system installation.

In addition to helping stampers maintain a competitive edge in a dynamic marketplace, a technology supplier can help

job shops grow their bottom line revenue by optimizing pressroom operations. ■

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