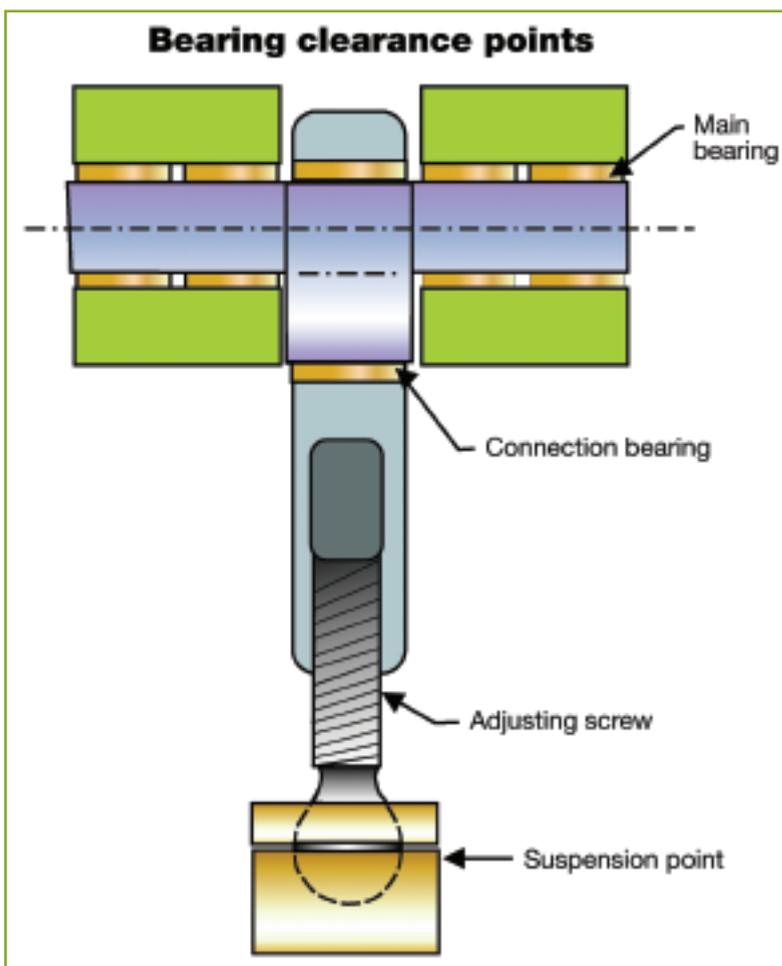


So, You're Looking for a New Press...

Gap-Frame or Straightside?

Some stampings need plenty of bed size, but maybe not the tonnage that often accompanies a large-bed straightside press. Consider a large-bed gap-frame press for these jobs—one stamper did, and saved a bundle.

BY TODD WENZEL



Today's lean economy has many stampers looking for ways to optimize part production with their current inventory of capital equipment. Stampers can minimize equipment costs and still meet most job requirements by better understanding the types of work that can be run on two common workhorses: the gap-frame press and straightside press. Taking a look at the strengths and limitations of each type of press can help stampers organize work more effectively and enhance overall efficiency. Stampers may even discover that their gap presses can shoulder jobs they may not have thought possible.

Gap Presses Offer Simple Access

It's no secret that the gap-machine's biggest advantage over the straightside is its modest price tag. In addition, for hand-fed operations, gap presses offer operators easier access. Gap-frame presses do, however, have some limitations in sizes and in the types of work they can run. By understanding these limitations and the reasons for them, stampers can utilize the less-expensive gap presses when appropriate and achieve an excellent return on investment.

On most newer gap-frame presses, stroke length doesn't exceed 12 in.; maximum tonnage availability is 275 tons; and bed sizes don't extend beyond 106 by 36 in. This means that drawn parts more than 4 in. tall, parts requiring more

Fig. 1—Metal stamper Luitink benefits from the tight bearing clearance of its gap-frame press (an Aida model), which minimizes snapthrough and improves bottom-dead-center repeatability, improving part quality and die life.

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than 275 tons of force, and parts requiring very large bed sizes are not considered good candidates for gap presses. However, stamping smaller parts that require multiple hits, and by necessity longer bed sizes, don't necessarily require a straightside press. Stampers with multiple gap presses can line the machines up and create a transfer line to handle these jobs.

A second difference between the two presses is how they deflect under load. Straightside presses deflect vertically. During operation, the straightside gets taller but the ram and bolster remain parallel. Gap-frame presses open farther in the front than the rear, bringing the ram out of parallel with the bolster. This deflection on a gap press, called angular deflection, affects some work more than others, specifically wider coil widths and tooling with extremely tight punch-to-die clearances.

Wider coil stock magnifies the out-of-parallel condition that occurs in gap frames under load. Gap presses, built with relatively narrow front-to-back bolsters, are intended to run a strip width of no more than 10 in. Coil strip wider than 10 in. generally must run on a straightside press, although it is sometimes possible to run wider materials on a gap. Stampers can request a case-by-case analysis of these wider jobs by the press builder to see if a particular job would be appropriate for a gap press.

Very thin materials (0.030 in. thick or less) require tooling with tight die clearances. Tools requiring very tight clearances must run as parallel as possible to maintain part quality and die life, so generally do not run well in gap-frame presses. Though not common, some gap presses are manufactured with extremely low angular deflection, making it possible to run material thinner than typical. Stampers can ask gap-

press builders to state angular deflection under full load as thousandths of an inch per inch of throat depth. On gap presses with extremely low angular deflection (that can be documented with supporting test data) progressive-die operations can be run successfully using material as thin as 0.020 in.

Shifting Work to Gap Press Frees up Straightside Time

While some jobs certainly require a straightside press, many jobs can run just as effectively in a gap. By considering the capabilities of their presses,

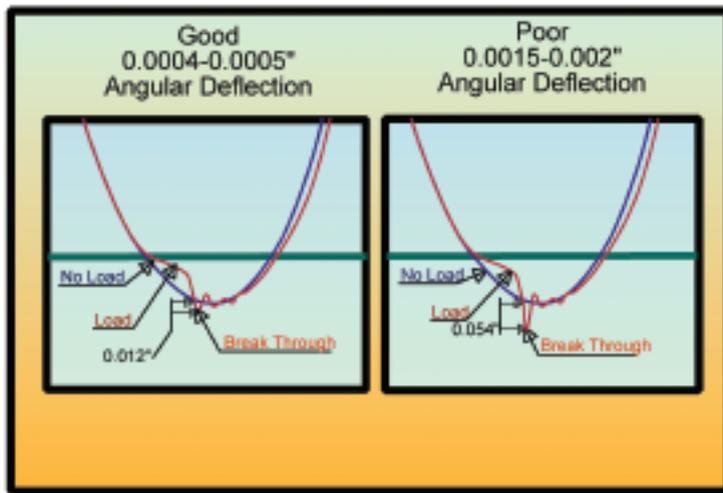


Fig. 2—Shifting work from its straightside press to its new gap-frame press, Luitink now runs tools with tighter tolerances on thinner materials, as thin as 0.020 in., thanks to the press' low angular deflection.

stampers may find that shifting work from a straightside to a gap frame can free up valuable press capacity for new work requiring the characteristics of the straightside. This may lead to new contracts being run with little or no additional capital investment.

This strategic approach helped Luitink Manufacturing Co., Menomonee Falls, WI, save money, meet the job requirements of a new contract and improve part quality. When awarded a contract that demanded the use of one of its 500-ton straightside presses, the company began preparing to purchase an additional straightside press to handle the increased workload. "Our local

distributor, TCR, had other ideas," says Gary Wenzel, general manager of Luitink. Luitink, QS 9000 certified, produces medium- to high-volume progressive and transfer stampings as well as welded assemblies.

"That contract required the tonnage of our 500-ton straightside," recalls Wenzel, "but we lacked sufficient press time to produce the needed volume. To gain capacity on our 500-ton press, we asked TCR to quote a 400-ton straightside press to take over some work. After looking at the types of jobs we wanted to move from the 500-ton to the 400-ton, TCR suggested we consider running the work in a gap-frame press, an Aida two-point 250-ton press with a 106-in. left-to-right bed area."

According to Wenzel, most of the jobs run on the straightside used thicker material in narrow widths. The majority of dies did not require 500 tons, but did need the larger left-to-right bed area.

"Aida engineers analyzed our straightside work," Wenzel says, "and determined that nearly all of it could run on their gap-frame press. Its low deflection and bearing clearance allows us to run a variety of materials while

giving us the bed size we need (Figs. 1 and 2). In addition to freeing up capacity on our straightside, we find we can run a lot of secondary or hand-fed operations on the gap press because of its simple access."

Huge Savings

When compared to Luitink's initial quote request for a new straightside, the company's purchase of the gap press saved it more than 50 percent in capital-equipment dollars. "We also realized other benefits that affected our bottom line," Wenzel adds. Shipping, rigging and installation costs for the gap press proved to be significantly less. MF