

# Heavy-Gauge High-Strength Stampings

## Fuel Growth for Thin-Gauge Specialist

*Precision Die and Stamping, a high-speed short-stroke stamper, moves toward higher tonnage capacity and remains committed to designing and building tools that will run long and help it prosper.*

BY BRAD F. KUVIN, EDITOR

You can tell by its name that Precision Die and Stamping, Inc., Tempe, AZ, specializes in precision (i.e. tight-tolerance) high-volume work. It's grown during its nearly 40-year life by building up its pressroom equipment inventory with the latest in relatively low-tonnage (primarily 100 tons and under) high-speed presses from Minster and Bruderer. At the same time, a well-equipped and staffed toolroom designs heavy-duty dies built to last, as more than one-third of the firm's contracts call for making millions of hits on electrical components for the automotive industry.

While precision high-volume stamping has meant the world to this 80-

employee metalformer, and will continue to do so, recently Precision Die has looked to expand its horizons by adding tonnage to its high-speed-press stable. The idea: Take on stampings up to  $\frac{1}{8}$  in. thick and form high-strength steels, running at up to 150 strokes/min. This, it seems, might be a wise move—according to Paul Hansen, publisher of *The Hansen Report on Automotive Electronics*, “pressure to reduce automotive

electronics component prices has never been so bad.” Writing in the April issue of *Automotive Industries*, Hansen notes that Visteon has even asked some suppliers for prepayment of future cost reductions.

“Our customers want us to do more, but want to pay less for it, less and less every year,” says Tony Costabile, general manager for Precision Die and Stamping, which averages around \$20

More than one-third of the work at Precision Die and Stamping goes toward supplying electrical components to the automotive industry. For example, it stamps the electronic frames (left) for Freightliner electrical bus centers (right). Angle tolerances on the frame legs can be as tight as 0.25 deg., challenging Precision's tool design and build facility to develop tools that will run quickly yet require minimal part inspection and die maintenance.



million in annual revenue and runs 31 mechanical presses in its 56,000-sq.-ft. manufacturing facility. "And now we don't even receive regularly issued purchase orders for these high-volume stampings," Costabile continues. "Instead, we often will get a blanket PO for the entire year, or longer. This forces us to manage our customers' inventory levels, track their past order histories and project their needs so that we can automatically manufacture and restock them. It also means an inventory buildup here in our facility, in some cases 60 days worth or more."

Precision maintains a 40,000-sq.-ft. building just for shipping and receiving, warehousing and final inspection.

### Bring on the Tonnage

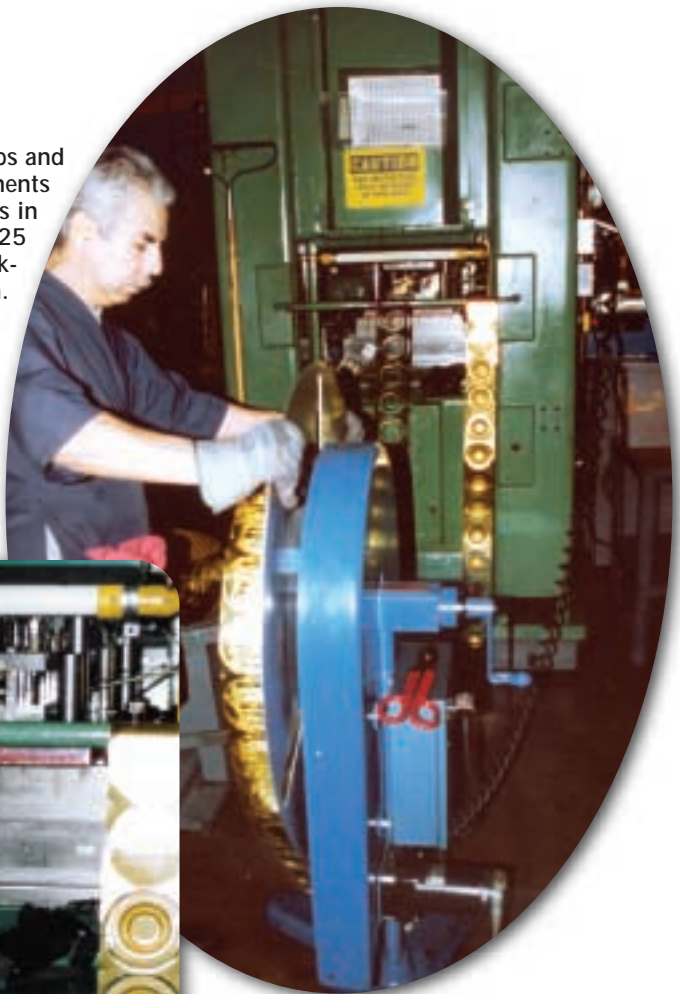
Of its 31 mechanical presses, Precision operates 21 automatic straightside models for progressive stamping. The rest are OBS presses. Most presses are Bruderer and Minster makes, from 30 to 300 tons. The pressroom also boasts an 8-ft. 300-ton Stamtec, its largest press, and a 300-ton 7-ft. Minster. These presses allow Precision to run large progressive dies on sheet to 1/8-in. thick.

Along with electrical-center stamping, we saw presses pounding out motor laminations for strong trimmers, and door-knob and lock components. "The lock industry comprises another 25 percent or so of our business," adds plant manager Andy Frola.

The firm's newest press, installed in May 2003, is a 315-ton adjustable-stroke single-action straightside model from Ravne Press, a Slovenian builder. "We've had quite a few jobs in the last two years that called for a little heavier material than we're used to running," shares John Buss, Precision vice president of engineering. "We looked at all of the work and were able to visualize some of it running at higher speeds and short stroke, but we needed more tonnage. That led us to Ravne, for a heavier-tonnage adjustable-stroke press."

The two-point eccentric-shaft press varies stroke from 1 to 6 in., and runs at speeds to 150 strokes/min. Bed size

Brass doorknobs and other lock components—50 part numbers in all—comprise 25 percent of the workload at Precision.



measures 84 by 48 in., and the material upright window measures 28 by 24 in.

"We've built 30 dies or so in the last year for heavier material," says Buss, "but most of the production stamping with these dies won't kick in until the middle of 2003." One of these jobs will have Precision stamping automotive seat-belt components, of 1/8-in.-thick high-strength steel.

### Cashing in with Dies That Run Better

Precision Die and Stamping has its roots firmly planted in die design and build, beginning in 1964 as a small family-formed tool builder, according to Ben Costabile, president. "We started as a die builder for Air Research, now Honeywell," he recalls. "Our goal all along was to get into stamping, and in

1967 we added our first press, and began stamping aircraft-engine parts for Air Research. We still stamp short- and medium-run parts for them. In fact, we make some engine replacement parts that began in the 1970s, for which the tooling has gone through many iterations. We make the parts better, yet have been able to hold prices by continuously improving the tooling."

Precision makes all of the dies it runs for its customers.

"We design and build the best die we know how to," Buss says, "so that we're sure it will run with minimal downtime, make good parts and be easy to repair and maintain. Since we don't charge our customers for maintenance and we maintain the dies for the life of the part, the better and faster the dies run, the better our bottom line looks on every job. This way, our tool-building expertise and efforts allow us to keep our piece-part prices down—that's our competitive advantage," continues Buss. "For example, we'll add stations to set

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Precision stamps these garage-door brackets out of 0.017-in.-thick Zinalume from Australian producer BHP Steel—the material is steel with a zinc-aluminum coating for corrosion resistance. Parts are run on a 90-ton Bruderer high-speed press at speeds to 200 strokes/min.

form angles where tolerances are particularly tight, where a tool-and-die house might merely provide only a cut-and-form station. We add die stations where necessary to ensure consistent quality.”

While it certainly knows how to design and build dies to meet the ever-tightening tolerance demands of its customers, Precision wishes, as do many stampers, that part specifiers would

better-understand the relationship between tolerances and part costs. If so, they'd be able to keep costs down by specifying tight tolerances only where necessary, and relax tolerances where possible. This would eliminate unnecessary and costly die features.

For example, building frames for electrical centers requires the forming of connector legs. Form angle challenges Precision's toolroom crew, since the 90-deg. angle must be held to  $\pm 0.25$  deg. “We used to have  $\pm 2$  deg. to play with,” recalls Buss.

To maintain production capacity on electrical centers while achieving such a dramatic tolerance tightening, the firm developed and patented a one-step forming process that enables it to set bend radii without requiring a second coining operation. The process over-forms the material with the aid of a guided stripper.

“We guide everything,” says Buss. “One-hundred-percent guided tools last longer.” MF