

JOHNSON BROS. METAL FORMING CO.

With a 10-inch Atlas lathe and the mechanical genius of Edwin Johnson, Sr., Johnson Bros. Metal Forming Co. was started in 1948 as one of perhaps only a dozen custom roll forming companies in America.

Johnson, now 83, founded his company with \$700 in war bonds matched by a brother who became his partner. Financed by these savings, Johnson made his first roll forming line totally from scratch on the lathe in the basement of his home on the northwest side of Chicago.

That roll former, along with 11 others he made, is still in use at Johnson Bros. It is a tribute to his mechanical skill that that roll former has been producing quality parts for almost 40 years.

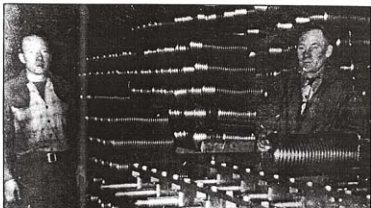
"That was seat-of-the-pants engineering. It's a page of history that has passed," says Edwin, Jr., Vice President and Treasurer who now runs the company located in suburban Berkeley, Illinois. "In the early days we were really big in lockseam tubing. Dad had a skill with it that not many people had."

Lockseam tubing is still over one-third of the company's business. And Johnson Bros. still relies upon the technical excellence and experience of its roll forming toolmakers and designers. But, as expected, the custom roll forming industry has changed dramatically over the years.

■ Company Philosophy

"Twenty-five years ago, maybe there were two dozen companies in the business," said Edwin, Jr. "It was basically an unknown industry. It's only been in the past five to 10 years that custom roll forming has gotten any national recognition."

"Now there are about 200 custom roll formers in the U.S., 20 in Canada, eight in Mexico and, of course, many in Europe. A lot of custom roll formers end up with



This photo, taken in the late 1940s, shows Edwin Johnson, Sr., right, his brother Harold, and a stock of headlamp rings the Johnsons roll formed for an automaker during the post-war years when auto replacement parts were in high demand.

product lines, but we've made it a matter of policy not to get into our customers' businesses. We're good at what we do, and we like doing it. That's why we've stayed as a pure custom roll former."

Johnson Bros. operates today with 18 roll forming lines, serving approximately 400 customers. Along with the considerable volume of lockseam tubing, the company roll forms metal mouldings of various profiles, unusual channel shapes, angles, rings and several miscellaneous parts.

One of Johnson Bros. brass mouldings is mounted on the face of a \$10,000 china cabinet. The company's rings are used extensively by the lighting industry. Many of their parts are used in displays for the retailing market. Other parts are used in curtain rods, clothes racks, and various products typically found in the home.

"One reason we have so many customers is that we'll take low-volume jobs," said Assistant Vice President Brad Johnson, who is the third generation of Johnsons in the family-owned business. "We like to keep to a minimum of 2,500 -5,000 feet, but we'll go as low as 1,000 if we can use standard tooling.

A lot of places have an established minimum of 20,000 feet."

Johnson Bros. makes most of its own roll tooling, cutoffs and pre-punching dies, and stresses in-line fabricating to maintain its price competitiveness.

"If you don't (fabricate in-line), you're stuck with highly competitive jobs that everybody can do, and you're not going to make money," Brad Johnson explained. "It's either automate or die. That's how the custom roll forming business is now."

■ Fabricating Equipment, Processes

To reduce costs, Johnson Bros. combines post-punching with cutoff as much as possible. In-line pre-punching is included only when multiple hits are required, when holes are not close enough to the ends of the piece or when a repetitive pattern is needed.

"We do a lot of end fabricating, in the cutoff die, more than most people, probably because we recommend post-punching," Brad Johnson said. "Not many people do it, I think because engineers are not that familiar with combining

Edwin Johnson, Jr., right, and his son Brad, left, inspect the spiraled rings produced today by Johnson Bros. Metal Forming Co.



punching with cutoff. You just don't hear of it that often, but we can hold closer tolerances with post-punching and it eliminates the cost of one extra (pre-punching) die."

Rings, which comprise 20 percent of the company's business, are bent in the same process that forms the straight U-shaped channel. Depending on diameter and material thickness, as many as 30 rings can be roll formed in a helix spiral and transferred to a punch press for cutoff, which is the only secondary operation needed. Holes are punched in-line for latches and nameplates.

"Hardly any custom roll former uses automatic cutoff on spirals because in-line cutoff tooling is very expensive," Brad Johnson said. "It's very rare unless you've got orders of 10,000 rings or more. Some day, I'd like to make a versatile, in-line ring cutting machine. But with the punch press there are basically no tooling costs, so it's the most practical method for our present customers."

To improve productivity in joining coil ends, last year Johnson Bros. acquired an automatic welder which reduces welding time (and downtime) from 15 minutes to only five minutes. In addition, the company purchased computer units which shop personnel installed to actuate the cutoff press and/or pre-punch press. The unit measures the strip moving through the line and accurately controls the timing of the press or presses for close tolerance work.

Three roll forming lines are equipped with accelerators (one purchased, two built in-house) which push the flying cutoff dies when running parts that are not strong enough to move the dies without kinking. Without the use of accelerators, the lines would have to run considerably slower, or they would have to be stopped for each cutoff stroke.

Johnson Bros. is in the midst of completing an extensive project to refurbish the older roll formers and presses built by Edwin, Sr. Bronze bushings which hold the

roll forming shafts are being replaced with roller bearings, allowing the lines to run faster and accommodate greater bending stresses.

Cutoff and pre-punch presses were re-wired to increase flywheel speed, allowing high-speed runs on shorter lengths.

"We're getting into competition with stampings there," said Brad Johnson. "It's been a struggle to rebuild the machinery and tooling that has worn out over the past 30 years, but it has helped us to decrease maintenance and increase our production speed and forming capacity."

■ Productivity

Front-office productivity has been enhanced by the use of an IBM PC to automate cost-accounting and bookkeeping functions as well as quoting and re-quoting. By preparing quotes faster, Johnson Bros. is able to keep up with requests for quotes which, in their busiest weeks, might number 50 or more. On rush jobs, typical in the display industry, fast quoting has been the difference in winning jobs the company might otherwise lose, according to Edwin, Jr.

"Competition has become very keen in custom roll forming," said Edwin, Jr. "When I started in 1956, we averaged one job out of 17 quotes. Now, it's one out of 50. And it's not only competition for work, it's competition for skilled workers too. Skilled people in roll forming are few and far between. We've had to train our subcontractor people to intercept headhunters who often try to entice superintendents and engineers. It's happening to everyone."

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Growth Through Association Involvement

Johnson Bros. Metal Forming Co. has long held company memberships in the Fabricators & Manufacturers Association, Intl. (FMA) as well as the Custom Roll Forming Institute (CRFI) and the Tooling and Manufacturing Association (TMA), formerly the Tool & Die Institute.

Why?

"I consider FMA, the Institute and TMA to be outstanding organizations," says Edwin Johnson, Jr. "It's good to be involved with a prestigious group of companies like FMA has in its membership."

"In FMA, you can get a lot of

expertise from the machine builders as well as other roll formers. There are a lot of automated techniques and new technologies that you can take advantage of when you get involved with people in your industry."

"We have certainly benefitted from our relationships in FMA. Our involvement has helped us be more productive in our operations and it has given us more exposure within our industry. Plus, it's enjoyable to get involved with others who have common interests and experience."