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Growth through collaboration

Muza Metal Products marches
beyond the price game / Page 54

Also inside:

- ▶ Know the cultural implications
of robotic welding / Page 46
- ▶ Why the soft skills really matter / Page 72
- ▶ From bending operator to bending guru / Page 74
- ▶ When more inventory makes
business sense / Page 82





Figure 1
A new hydraulic press, with the ability to deliver 60 cycles per minute or more, meets the speed needs of Dahlstrom Roll Form's roll forming line. Photo courtesy of Beckwood Press Company.

nents for steel doors and windows, a sort of timeless connection between the work of today and the work of yesteryear.

But manufacturing companies don't prosper by focusing on the good old days. White said Dahlstrom Roll Form is spending its time trying to increase the value that it can deliver to current customers and educate those that might not know what roll forming can do for them. The company presents the basic facts about the process and dispels myths, such as roll forming is only for high-volume runs that might span hundreds of thousands of feet.

"We can be creative with existing tooling packages and with financing to help out OEM customers," White said. "And by using setup techniques and cross-trained teams, kind of like NASCAR pit crews, we can cut setup time down significantly to allow for shorter runs."

To illustrate the emphasis on quicker setups, White said that at one time the company might have dedicated only one person to a line changeover. Now more people are focused on the changeover job to get the line back up and running as soon as possible. What might take one person six hours to accomplish now takes three people two hours.

"If I'm amortizing my setup time over a run, I'm amortizing two hours over my run versus six hours. That's a huge difference," White said. "I can effectively create one-third the inventory for the same setup cost and also create four more hours of run time for another customer."

Dahlstrom Roll Form also is committed to keeping up with new manufacturing

technology. Again, such investments result in faster job processing, which lets the company take on more work and increase opportunities for revenue generation.

Such was the thinking when the company added a 75-ton high-speed hydraulic punching press (see **Figure 1**) from Beckwood Press Co. in the fall of 2017. The machine, which is to be used for precision punching on the roll forming lines, is the company's fourth such customized hydraulic press supplied by Beckwood.

The Punch Line

Why did Dahlstrom Roll Form choose to go with hydraulic press technology for this application? Besides its comfort level with the technology, the company had three very specific reasons.

No. 1: It's More Efficient. Like many manufacturers, Dahlstrom Roll Form wanted to make parts faster. In particu-

lar, it was looking for a press to deliver 60 cycles per minute or more. To most, that sounds like a mechanical press application, but not in this case.

"The desire to leverage the versatility of a hydraulic press while increasing speed is becoming more prevalent with all manufacturers," said Josh Dixon, director of sales and marketing, Beckwood Press Co. "Many customers focus on a fast approach speed so they can have a long stroke and allow a robot or operator to access the working area for loading and unloading.

"But with Dahlstrom's coil-fed application, it was a little different because they only needed a very short stroke," he continued. "We were able to accomplish this with a custom hydraulic circuit designed to allow for short cycling of the press while also preventing the ram from 'overshooting' the programmed extend and retract

positions."

"You are able to gain that speed through having that separate power pack, which is pretty robust. That fires up the hydraulic fluid and produces that speed in those short strokes," White added.

Because it's a hydraulic press, Dahlstrom Roll Form is not sacrificing power even with the short stroke. The full tonnage of the hydraulic press can be delivered at any point throughout the stroke, even at the point it hits the metal.

No. 2: Die Life Is Extended. Most roll forming customers own the tooling for the work performed at Dahlstrom Roll Form. Anything that can be done to protect that investment and prolong its life likely would be greatly appreciated.

Because a hydraulic press's stroke can be controlled to alter speed anywhere

Why hydraulic press technology makes sense in roll forming applications

Dahlstrom Roll Form believes it gets an edge in performance with this metal forming technology

By Dan Davis

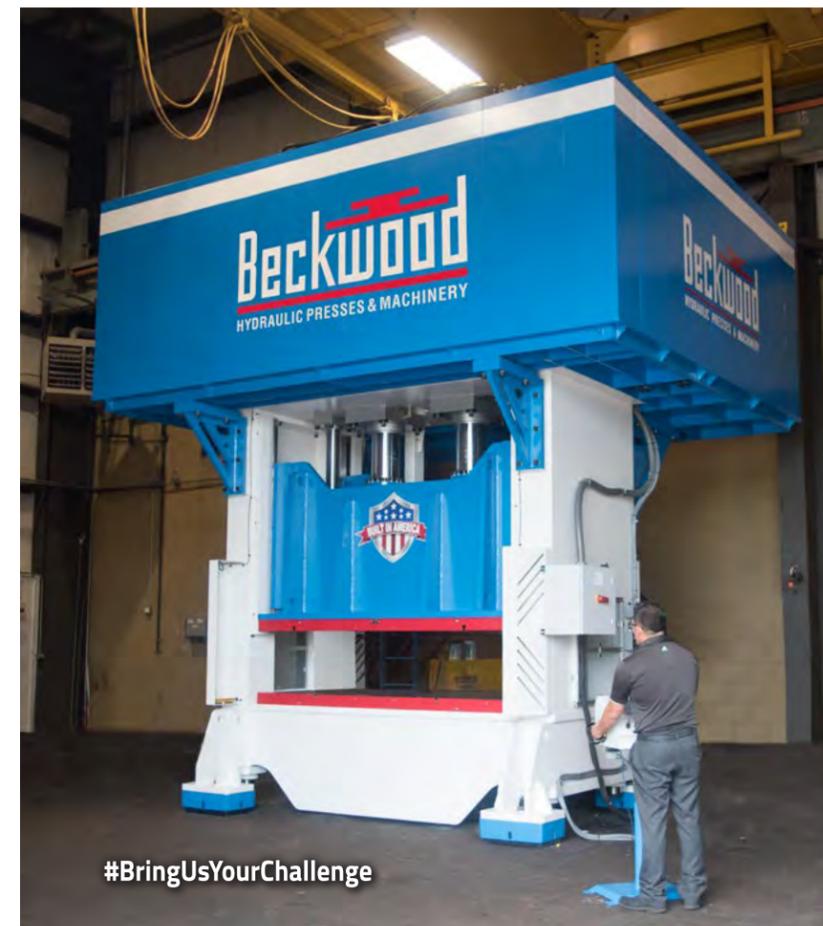
Not too many manufacturing companies can claim to be more than 100 years old and say that their histories are still being written. Dahlstrom Roll Form is one such fabricator. The company started in 1904 as a steel door manufacturer. In fact, it had the first U.S. patent for a fire-rated steel door. It established a roll forming division to handle the creation of steel moldings that would act as trim for those doors. (For those unfamiliar with roll forming, it is a cold-forming process that gradually bends flat metal into a finished, uniform profile by passing it through a series of mated tool dies. It is an economical process for producing metal channels, angles, and complex shapes with multiple bends. It also allows for the addition of holes, notches, slots, and embossments during inline processing.)

Obviously, back then, the building codes weren't as sophisticated as they are now, but fire prevention and protection efforts evolved to the point where the need for fire-rated steel doors and

window trim wasn't as great as it once was. Dahlstrom Roll Form evolved as well. It's still involved in roll forming architectural moldings, which roughly account for about 15 percent of the overall business, according to Dahlstrom Roll Form President Robert White. In fact, the company still warehouses its lesser-used tool sets, some of which are literally more than 100 years old.

Today the company is primarily a contract manufacturer that specializes in roll forming. Of the 14 roll forming lines in the company's Jamestown, N.Y., manufacturing facility, five are dedicated to specific products. The others perform high-mix work that requires quick tooling changeover for maximum uptime. The key to profitability, after all, is concentrating on profitable activities, which for Dahlstrom Roll Form is roll forming parts, not setting up lines.

Dahlstrom Roll Form's diversified customer base includes companies in the refrigerated food storage equipment, elevator/escalator, solar panel racking, trailer, transportation, and construction industries. It even still makes compo-



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during the entire stroke, controls can slow down the ram as it is about to encounter the metal for punching. This is done to minimize breakthrough shock, which results in more gradual wear on the dies.

No. 3: It's Flexible. In general, because a hydraulic press can apply pressure across a tonnage range, it can do different jobs. More specifically, this new press met Dahlstrom Roll Form's need for flexibility when it came to accepting tooling.

"Because of our history with Dahlstrom over the last 10 years, we're accustomed to what they expect in a machine," Dixon said. "Knowing this, we were able to machine the bed and the ram to accommodate tooling used on their other Beckwood machines. In addition to the universal mounting from machine to machine, the hydraulic press's shut height, retract position, and speed can be adjusted on-the-fly to account for tools of varying heights or changes in material feed rates. This significantly improves die change turn-around times on the roll form lines."

"A lot of mechanical presses will need certain die specifications to be the same in order to have them fit into the press," White added. "With a hydraulic press, you can make almost an infinite amount of adjustments to make the tooling work."

Controlling the Line

Roll forming is a ballet of several actions—uncoiling, feeding, stopping,

punching, and indexing—occurring simultaneously. There are also pneumatic gags in the tool that turn on and off as different parts of the strip are punching at different stages. When things work together as they are programmed to do, it makes manufacturing a lot easier.

The problem for Dahlstrom Roll Form, however, was that over the years its roll forming lines had accumulated different control units. When the company is trying to cross-train operators, varying control interfaces can slow down the learning process.

Because of this, Dahlstrom Roll Form is in the process of trying to standardize controls for all of the lines. The company selected AMS Controls to handle the transition, starting with the newest hydraulic press.

"Training operators to understand all of these different controls is difficult," White said. "It's a lot easier when they walk up to a control panel that is famil-

iar to them, no matter what line they are working on."

White said he believes the technology investments have put Dahlstrom Roll Form in a good position to make the most of an improving manufacturing economy. The manufacturer currently is running two shifts and will add a third when it hits its busy season in the third quarter of this year. (The busy season coincides with a huge buying surge that is tied to the construction industry.)

"We're expecting a good year this year. We're seeing more opportunities," White said.

That sounds like a good start to the next 100 years in business.

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▶ Dahlstrom Roll Form, dahlstromrollform.com

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