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Hydraulic Press Takes Forming to a New Level

A custom 450-ton machine aligns nicely with Empire Level's existing die-transfer system and squares away its forming challenges.

BY LOUIS A. KREN, SENIOR EDITOR

Closing in on 100 years in business, Empire Level, Mukwonago, WI, has made its name as a top worldwide supplier of layout and measurement products such as levels, squares, utility tape and more. In 2014, Milwaukee Tool acquired the company, and since then, Empire Level has embarked on a \$16-million investment in its workforce and equipment.

"From the invention of the Monovial, to the introduction of the first Torpedo Level, Empire Level has a strong history of innovation," said Steve Richman, president of Milwaukee Tool, at the time of the acquisition. "We share a passion for delivering best-in-class solutions for our users. We are extremely proud to expand our portfolio with Empire Level, and we are committed to driving disruptive innovation and accelerated growth within the business."

Acquisition Brings Culture Change

That it is. On the people side, Empire Level embarked on implementing a culture shift by increasing training opportunities, streamlining



internal processes and implementing surface improvements including a new paint job for the company's 140,000-sq.-ft. manufacturing plant. More than 200 employees operating across three

shifts call Empire Level home, and the company has "sold" its products to these internal customers by using its marketing team to demonstrate the products and explain their quality and

Hydraulic Press Takes Forming to a New Level

performance features. Buy-in was central to moving the company forward.

Empire Level's transformation also included updating processes and replacing old production equipment that was no longer efficient. Milwaukee Tool bought the company precisely to manufacture products in America and continue to compete globally, so using outdated equipment was not an option.

One of its newest pieces of equipment is a custom 450-ton hydraulic press from Beckwood Press, St. Louis, MO. Empire Level needed a complete forming solution that could integrate with its existing die-transfer system and accurately form precision rafter squares using progressive dies, according to Steve Lallensack, Empire Level's director of operations.

New Press Addresses Reliability, Flexibility Needs

"This new press grew out of our commitment to people and equipment, and, in fact, was the flagship project

for that initiative," Lallensack says. "We went after reliability with this project. At the time of the acquisition by Milwaukee Tool, equipment reliability was this plant's biggest production issue. The rafter squares are an important product line for us, and we needed to gain equipment reliability to ensure the success of that line."

Besides eliminating the mechanical and maintenance issues caused by the older equipment, the new press offers production flexibility and process repeatability.

"We boosted the desired tonnage on this new press to allow the addition of new products," Lallensack explains. "We had some similar style rafter-square products that had been running in a 1000-ton hydraulic press, and by installing the 450-ton press, we could move that product over and open up the 1000-ton press for other work."

The resulting gib-guided press features a 60 by 100-in. bed as well as magnetic platens, die rollers and lift-

off die consoles to facilitate quick die changes. Its structure is engineered for long life using finite-element-analysis testing, according to Beckwood officials.

"We knew from our first conversations with Empire that we'd be dealing with an off-center-loading application due to the nature of the progressive dies," says Josh Dixon, director of sales and marketing for Beckwood Press. "Beckwood's gib-guided design allows the machine to effectively handle the dynamic loading, and the magnetic platens and other die-change equipment allows Empire Level to drastically reduce the machine idle time caused by tool changeovers."

Empire Level's arsenal of machinery includes both mechanical and hydraulic presses. It relies on the hydraulics to assist with heavier coining operations while the mechanicals tackle more straightforward punching and stamping jobs. This diverse mix of machinery gives Empire Level



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process efficiency and part-to-part repeatability.

In production since January of this year, the new hydraulic press primarily forms 1/8-in-thick extruded aluminum to produce multiple versions of rafter squares that range in size on either side of 1 ft. long. Weekly volumes range from 3000 to 25,000 parts depending on the model number, according to Lallensack.

Hydraulic the Best Option for Empire

Well-known characteristics of hydraulic presses—dwell time and stroke-speed control—made this type of machine the best option for Empire Level.

“We looked at servo, mechanical and hydraulic presses,” recalls Lallensack. “A hydraulic press gives us the control ability of the servo, and the ability to gain the tonnage and dwell that we need. The press became the best of all worlds for us, especially given the added dwell time so important for the coining process.”

The new press indeed has provided the reliability and productivity that Empire Level had sought, and the company continues to make headway in reliability in other areas, including the press tooling. Empire Level contracts with local companies for tool build and significant maintenance, while performing preventive and more routine maintenance inhouse.

“We are on the journey now toward proactive tool and machine maintenance,” offers Lallensack. “We have been implementing maintenance software as well as products and processes to track our equipment assets and ramp up our preventive- and predictive-maintenance efforts.”

Lallensack points to the ability to have a press built exactly to its specifications as key in the success of the upgrade project.

“Beckwood was able to design, engineer and build the custom press for our specifications,” he says. “In addition, its operations in St. Louis are relatively close to our location. Toward

the end of the build, I was on a family vacation nearby and Beckwood allowed me to come in and see progress.”

Initiatives, Acquisition Bring Growth

“We’ve been growing at a 20-percent annual clip for the past few years, and have featured the ‘Made in America’ concept at Empire Level,” Lallensack says. “That was another reason for the

press choice, as Beckwood built this press, and builds all of its others, here in the United States.”

Besides the investment in people and equipment, Lallensack also attributes Empire Level’s growth to the Milwaukee Tool acquisition, which has provided access to that company’s expansive worldwide customer base.


“This has been an exciting story for us,” he says, “no doubt about it.” **MF**


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