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WITHOUT LIMITS

Servo technology helps manufacturer build capacity, improve part quality and tool life

In 1998, Randy Bezile founded a three-man shop with a mission to make quality parts. Today, United Manufacturing Inc.'s 30,000-sq.-ft. manufacturing facility houses a team of seasoned personnel, dedicated tool and die makers, 20 stamping presses and a comprehensive range of quality and finishing capabilities.

"Our business is primarily component parts for the automotive market," says UMI Plant Manager Troy Bush. "But we also produce parts for industries that include electrical, telecommunications and household appliances. Additionally, UMI provides secondary operations such as laser welding, deburring, cleaning, inspection, leak testing, and part assembly. We manufacture deep draw and progressive die components with materials that range from aluminum, brass, copper, low carbon and stainless steel, to specialty alloys like Inconel."

UMI targets high-volume components found in products such as fuel systems, solenoids, spark plugs, powertrains, engines, fluid handling systems, lock hardware, fire suppression systems and heavy machinery. Its engineering department works with customers to coordinate production with design and prototype requirements. "The ability to design for manufacturability is crucial," he says. "If challenges crop up during a job, our in-house toolmakers have the experience to make sure things run smoothly and efficiently."

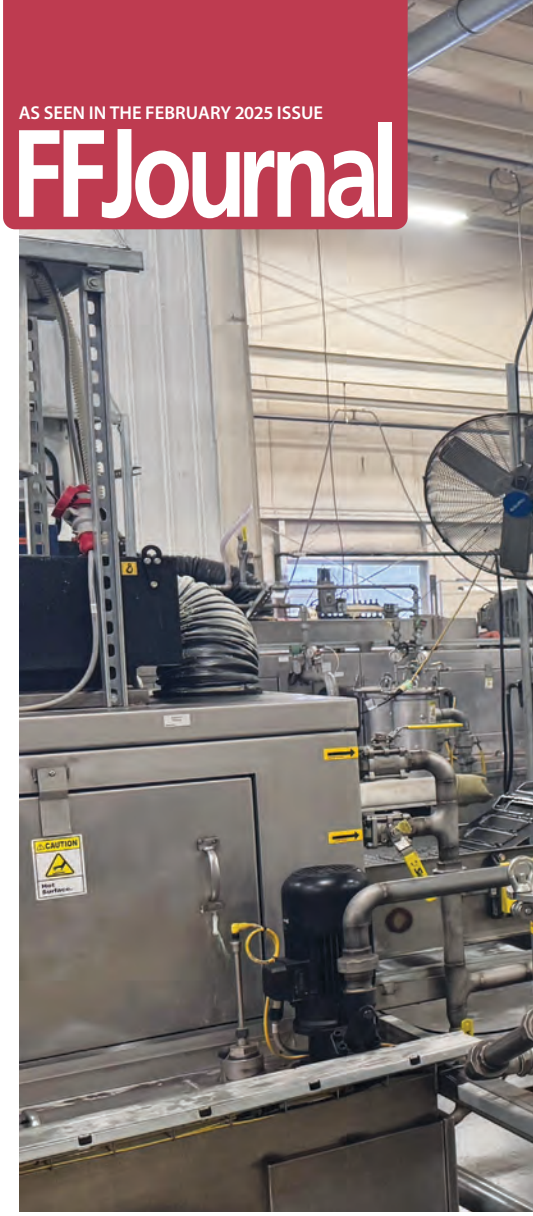
A DIFFERENT PATH

Bush has worked for UMI for three years but says he has known Bezile for nearly three decades. Both men are well acquainted with AIDA-America's servo press technology. Bush says prior to his employment at UMI, he was introduced to AIDA's servo presses at a symposium the press builder held in Dayton, Ohio. He was interested in equipment that could optimize productivity, improve part quality and provide unlimited programmable slide motion profiles. AIDA introduced the first direct-drive servo press with programmable motion in 2002.

When growth prompted UMI to expand its stamping operations, the company chose AIDA's DSF-N2 Series Unitized Frame Direct Drive 300-ton servo press. The manufacturer combined the rigidity of a unitized frame with the flexibility of programmable servo motion. The machine features a Mitsubishi control, hardened and ground pinion and ground main gear, a 6-point slide guide system, a hydraulic overload protection system and ball-and-socket connections for reduced maintenance.

UMI installed the AIDA 300-ton DSF-N2 servo press in 2018. In addition to controlling press speed and stroke length as well as dwell time, restrike operations and auxiliary function timing, the press boosted output with the aid of stroke profile programming. The ability to reduce draw speed at the bottom of the ram stroke also significantly improved tooling life for UMI.

Since the installation of the 300-ton servo press, Bush has attended several AIDA



UMI can modify motion profiles quickly and easily with AIDA's intuitive program screens.

UMI installed the AIDA 200-ton DSF-N2-AB Series Two-Point Unitized Frame Direct Drive servo press to create additional capacity.

symposiums on the technology. "We're processing hot-rolled steel parts at 50 strokes per minute," he says. "We want to move that job to the servo press because, with pendulum motion, we think we can achieve 80 strokes per minute."

In 2024, UMI added an AIDA 200-ton DSF-N2-AB Series Two-Point Unitized Frame Direct Drive servo press. Equipped with an AIDA/Allen-Bradley servo control system, standard features include a hand-held step-feed pendant for ease of die setup, an ergonomically designed 12-in. swing-arm mounted color touchscreen, HMI, and optical run buttons.

"We bought the second servo press to build more capacity," says Bush. "We took over a job to produce mirror frames for a customer. We'd stamp the part, run it through a four-stage washer cycle and ship it to the customer. We needed to produce 45,000 parts per week for the cradle-to-grave job. With the ability to increase speed by 40 percent to 50 percent with the 200-ton servo press, we were able to eliminate a shift. Stroke profile programming allowed us to save about $250,000 in labor costs. We increased throughput without adding personnel, got a better part and improved tool life."

> **"With the ability to increase speed by 40 to 50 percent with the 200-ton servo press, we were able to eliminate a shift."**
>
> **Troy Bush,** United Manufacturing Inc.

PROGRAMMING

But the big win, Bush adds, "is servo's silent blanking stroke motion profile. Because the program can target that critical point in the stroke where the actual blanking takes place, it is able to reduce reverse tonnage, as well as

The servo press's silent blanking stroke motion profile reduces reverse tonnage and shock and vibration as well as noise levels.

the shock and vibration that occurs when the tooling cuts the desired shape from the sheet metal. Noise levels are also decreased."

UMI is running cold-rolled steel and grade 304 stainless for parts ranging in size from ¼ in. in diameter and 0.01 in. thick up to 3 ½ by 9 in. "We want to run a 2 mm-thick cold-rolled steel steering wheel bracket with a 6-in. stroke on the 200-ton servo press but we have to redevelop it because the legacy press we were running the job on has so much deflection," Bush says.

"The trial parts we've run though have never been this good in terms of flatness and wall thicknesses," he continues. "We're able to run thicker parts than we could in a conventional press. I can increase draw speed on either end of the cycle and then regain all the speed I want just by programming the profile."

With the servo press, draw speed is controllable, versus a flywheel in a conventional press, which operates at a fixed speed. Slide motion can be quickly and easily modified. Programmable profiles are unlimited, giving stampers like UMI the ability to select from options that include crank, link, flex, silent blanking, pendulum, draw-repeat or multiple restrike.

"Randy's motto is, 'I don't want to be the biggest, I want to be the best,'" says Bush. "Servo helps us put our best foot forward. It allows us to market ourselves in a new way." FFJ

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