

Going for the win

Fabricator invests in servo technology to capture larger market share

“**E**verything has its limit—iron ore cannot be educated into gold,” said Mark Twain. Literary experts think the writer and humorist meant that the best education will only benefit an individual as much as his or her natural abilities allow. When Shape Corp.’s 1949 1,000-ton mechanical press broke down in 2015, the Grand Haven, Michigan, manufacturer soon found the machine had reached the natural limits of its capability to be productive.

“The problems we encountered once we dug a little further pushed repair costs to a level comparable with the price of a new mechanical press,” says Mike DeJonge, manufacturing engineer for Shape, a 40-year-old, family-owned firm. “We were aware of servo press technology so we decided to take a look at it.”

Shape designs, engineers, tests and manufactures diverse parts and components from metal and plastic for customers across North America, Europe and Asia. Forming a team that consisted of the plant manager, tooling engineers, select press operators and tool makers, Shape set about

researching the science behind servo. “It was a major decision,” DeJonge says.

The hard stuff

Members of the team attended a servo symposium as part of their due diligence. The manufacturer narrowed its choice to two major servo press suppliers and weighed its options. “We felt that a servo press would give us a competitive edge,” says DeJonge. “We chose Seyi America. The decision came down to timing and pricing. They were able to meet our timeframe and our budget.”

The press builder, in Tullahoma, Tennessee, installed a Seyi 880-ton direct-drive servo press at Shape’s Metal Division in 2016. The division processes a range of 50,000 to 150,000 ksi yield materials from advanced high-strength steels (AHSS) to dual-phased alloys to produce accurate, low-mass structural products that include vehicle bumper beams, pillars and body-in-white components.

“We make products from the highest strength of cold-rolled sheet steel in the world,” notes DeJonge. “We combine





Seyi's servo technology provides low RPMs and high torque, with programmable operation of the slide motion.

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Mike DeJonge, Shape Corp.

nage because we're able to slow the press stroke near bottom dead center," says DeJonge. "It's easier on our tooling. We've reduced breakage. One of the major gains for us is the ability to not only slow the press stroke at BDC during forming, but maintain speed as the ram ascends to top dead center. We have seen an increase in part consistency."

By comparing its mechanical press performance records with that of the new servo press, Shape was able to document a significant drop in tooling down time.

The stamper runs progressive dies from 144 in. to 180 in. at a rate of 400 to 750 tons. "The consistency of the parts we are running will likely lead us to invest in a restrike station," DeJonge says.

Apart from using the servo press to win new business, Shape is also bringing work in house that previously was outsourced. "Capacity was one of our big issues," DeJonge explains. "We run a solid two shifts a day, five days a week. If we were only running jobs on something as slow as the mechanical press that needed repairs, we wouldn't be able to bring this work in house. Now we are increasing revenue."

Shape has four manufacturing facilities in Grand Haven and more plants in Mexico, China and the Czech Republic, DeJonge says. "The servo press is allowing us to recapture time that we use to work with personnel at our other factories."

engineering with progressive processing to develop lightweight, high-performing components like bumper systems and structural parts that can absorb energy in the event of a crash to protect both the occupants and the vehicle. We felt the unique capabilities of the servo press would allow us to enhance these operations."

Shortly after installation, Shape began ramping up output in mid-August. "We jumped into production a little sooner than we anticipated because we had another mechanical press break down," DeJonge says. "We moved the dies from that press to the servo and are currently running 10 jobs with different tooling."

The programmability of Seyi's direct-drive servo press can significantly reduce reverse tonnage by allowing the operator to slow press speed and reduce the press stroke for consistent, precision forming on a part-to-part basis.

"We are experiencing less reverse ton-

Stamping/Presses

Highs and lows

“Direct-drive servo technology is about providing manufacturers with low RPMs and high torque, along with programmable operation of the slide motion,” says Jimmy Pilaczynski, regional sales manager for Seyi America’s Servo Division. “The benefits of this type of control are especially suited to forming of high-strength material. A conventional press would be required to run this material at slow stroke rate and lack the energy needed for forming. A direct-drive servo can accelerate the slide, then slow the stroke down just prior to making contact with the material. As soon as processing is complete, the slide regains cycle speed. Cutting precision and die life are improved.”

Using a half-motion profile on the servo press, Shape was able to bring one job in house, forming metal at 15 SPM while producing parts at 25 to 30 SPM. “Increased throughput allows us to run faster,” notes DeJonge.

Operators are quickly picking up the nuances of running the servo press. Following on-the-job training, DeJonge says personnel are being given more programming freedom. “The push for zero defects is huge,” DeJonge says. “Tighter tolerances are being demanded of Tier 1 suppliers on down. That’s another reason we wanted a servo press. It’s much more accurate and it gives us control over the entire process. That’s what helps us meet these

The Seyi America 880-ton servo press was installed at Shape Corp. to stamp AHSS and DP alloys.

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This spring Shape is installing a linear transfer system to its Seyi servo press. “This configuration provides special forming profiles that will help [us] produce better parts from dual-phased alloys. [Our] company isn’t afraid to invest in the latest and greatest equipment,” notes DeJonge. “It can be a risk sometimes but press technology like servo is what positions us to win more work.”

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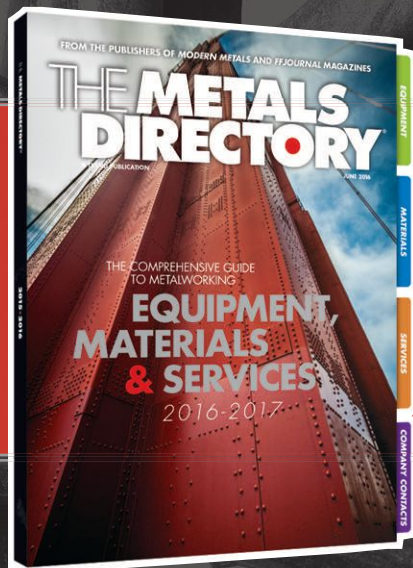
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