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# A Metalforming Revolution at EJ Ajax

## How Servo Presses Will Launch EJ Ajax into the Next Generation of Metalforming Technology

EJ Ajax & Sons of Fridley, Minnesota, has finalized the purchase of two new AIDA Gap Frame Servo Presses scheduled for delivery during the 4th quarter of 2014. These new 220-ton presses will deliver many important new benefits to EJ Ajax customers, including:

**More speed** – servo presses can be programmed for very high velocity operation without compromising results. A single servo press can perform work that formerly required multiple machines, eliminating time-consuming pauses in the production cycle while work is transferred from one process to the next. The result is more parts in less time.

**Lower cost** – minimized die wear and longer tool life offered by servo presses virtually eliminate expensive re-tooling. This enables long, highly-efficient production runs with fewer steps and reduced scrap. Servo presses also help eliminate undesirable outcomes that increase costs, such as reverse tonnage, snap-through, part-edge rollover, and springback.

**Higher quality** – servo presses are ideal for forming advanced metals that have superior strength-to-weight ratios, such as high-strength, low-alloy (HSLA) steel. HSLA steel is sought-after by companies who want to produce the lighter, stronger products that consumers demand, but HSLA steel has been difficult to form using traditional flywheel-driven presses. Servo presses handle HSLA steel beautifully and are also very precise; accuracy can be measured down to the micron.

**More choices** – the infinitely programmable stroke profile of servo presses gives product designers and engineers a much wider variety of metalforming capabilities to choose from, helping them improve the design and performance of their finished products. Servo presses can also perform in-die functions such as staking and welding. The metalforming possibilities are almost endless.

“Servo presses are a revolution in metalforming,” said EJ Ajax Co-owner Erick Ajax. “We’re in our third generation in the metalforming business, and this is the most important innovation we’ve seen in decades. Simply an amazing new technology.” Mr. Ajax said his company has expanded production space to accommodate the two new servo presses. The company also allocated new space for team meetings and training, he said.





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## **What Makes Servo Presses Better?**

Long story short: servo presses shape metal carefully and intelligently instead of using brute force.

With a traditional mechanical press, impact energy is delivered from a spinning flywheel down through connecting rods, which then drive a ram that produces maximum tonnage at some point just above bottom dead center. A mechanical clutch engages and releases the drive. Following impact, the main drive motor has to work hard to get the flywheel back up to full speed before the tool impacts the material again.

This is a perfectly good machine setup for many applications and will remain a staple of the metalforming business for years to come. But the shortcoming of a traditional mechanical press is this: it can't slow down. If it does, the flywheel won't deliver enough torque to form the metal properly.

A servo press, however, can deliver maximum torque at any speed, so a shorter, more efficient stroke can be specified by the operator. Within that stroke, the servo press can be programmed to descend quickly, and then move slowly to "work" the metal very accurately with multiple short strokes, and then return quickly to its normal height while clearing the formed work. New capabilities at the bottom of the stroke, such as programmable dwell, allow the workpiece to settle in perfectly before the final metalforming steps occur. This adds greatly to the lifespan of the die.

Varying the dwell time also enables advanced in-die functions like staking, heating, and welding. This high level of control also enables metalformers to use water-soluble lubrication instead of high-viscosity lubrication. This simple-sounding switch eliminates a time-consuming cleaning step downstream in the process. Just one more way that servo presses can increase speed and reduce costs.

## **About EJ Ajax & Sons**

EJ Ajax provides precision metal stamping, sheet metal fabrication, fiber optic laser cutting, and related precision metalforming services. This third-generation company was founded in 1945 by Erick J. Ajax, the grandfather to current co-owners Tom and Erick Ajax. As an inventor working out of his home, the senior Ajax applied for and received several important patents relating to metalforming and manufacturing.

EJ Ajax became proactive in workforce development program in 1998 and continues to find new ways to attract, inspire, and develop individuals who seek a career in advanced manufacturing. A significant percentage of the company's current employees have been with EJA for more than a decade.

With few exceptions, the company's new hires start at entry level positions and rotate through all departments to build proficiency in many disciplines. Many have taken advantage of the educational opportunities and have advanced to become valuable team members. Today, after nearly 70 years of growth, the company occupies more than 40,000 square feet of manufacturing space and employs more than 60 full-time colleagues and about a dozen active apprentices. For more information, visit [metalformingblog.com](http://metalformingblog.com).