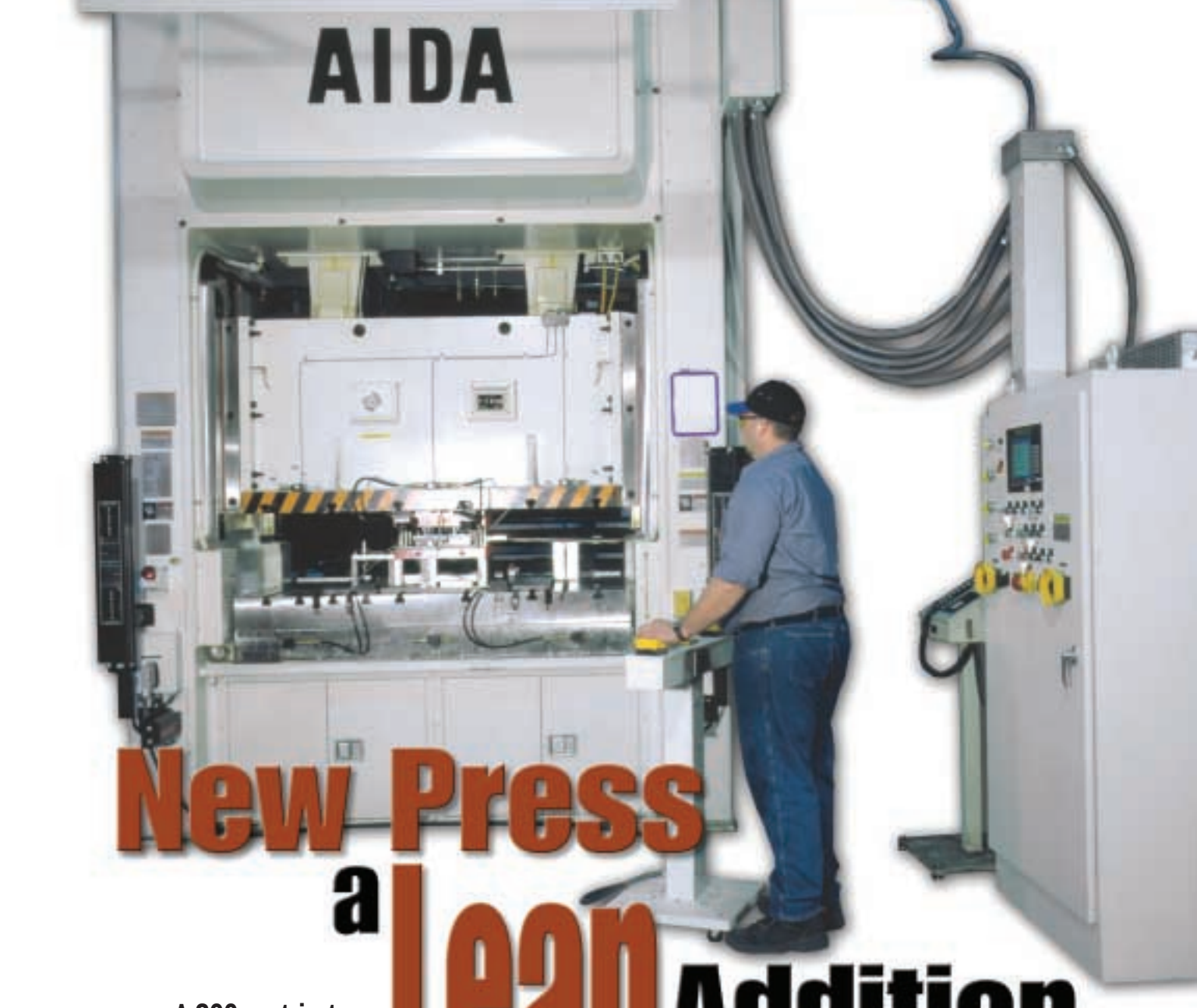

New Press a Lean Addition

A 200-metric-ton large-bed press accepts larger dies, enabling this washroom-accessory producer to bring secondary operations into the die. Another plus: Ball-socket technology protects the press and tooling from load stresses.

Bradley Corp., battling ever-increasing competition in its target markets, has installed a new unitized, straightside 200-metric-ton mechanical press to shorten lead times and reduce product costs. Bradley, Menomonee Falls, WI, invented the group handwashing fixture more than 80 years ago, launching the company into the manufacture of plumbing fixtures and washroom accessories. Its product line also includes toilet partitions and solid plastic lockers. Clients range from small local facilities to international corporations such as Wal-Mart, General Motors, United States Postal Service and AMC Theaters Corp.

To separate from competitors, Bradley focuses on providing complete washroom or lockerroom assemblies and products. Adding the press, an NSU

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A new 200-metric-ton press gives Bradley Corp. the bed size and load capacity it needs to build new stamping dies that eliminate the need for secondary operations.

model from Aida-Dayton Technologies Corp., Dayton, OH, helps the company maintain its competitive edge and refine its lean-manufacturing practices, according to Bradley officials.

"We needed to shorten lead times and reduce our product costs," says Brian Boeck, Bradley manufacturing engineer. "The NSU's bed size and load capacity made it possible for us to build new stamping dies that eliminate the need for secondary operations."

The press bed measures 72 in. right to left and 42 in. front to back, enabling it to handle the larger dies necessary when incorporating added operations. By giving Bradley the space needed to accommodate larger dies, stamping operations could be completed in one die, saving the company time and material handling.

At Bradley, the NSU functions as a stand-alone work center to produce stainless-steel component parts for downstream assembly cells. The cells assemble components into end-level washroom accessories such as waste receptacles and towel dispensers.

Meets Need for Part Accuracy and Appearance

The rigidity of the press—with its one-piece frame—and its low clearance minimize elongation during parts production for improved accuracy, according to Aida officials. Its rigidity also helps Bradley meet a second key production challenge.

"The nature of our work demands highly aesthetic appearance-critical parts," says Boeck. "The NSU has worked well in helping us achieve that objective."

Press rigidity and accuracy stabilize the ram during each stroke, allowing the press to produce parts in polished and brushed stainless steel without marks or scratches.

"The open access of the NSU also makes it easy for us to perform a high quantity of die changes in less time," Boeck adds.

Bradley runs more than 100 different part numbers per week from stainless-steel stock, using 30 separate dies—necessitating plenty of die changeovers.

"That is driven by providing our customers any one of more than 700 products with an average lead time of two days," says Boeck. "Addition of the NSU press is a big reason why we've been able to reduce our lead times from five days to two."

The 0.001-in./ft. bed and slide deflection rating under full load allows extended tool life and more accurate parts while minimizing part burr, noise and vibration.

"Already we've noticed some decrease in die wear, due mainly to the good deflection characteristics of the press," Boeck says.

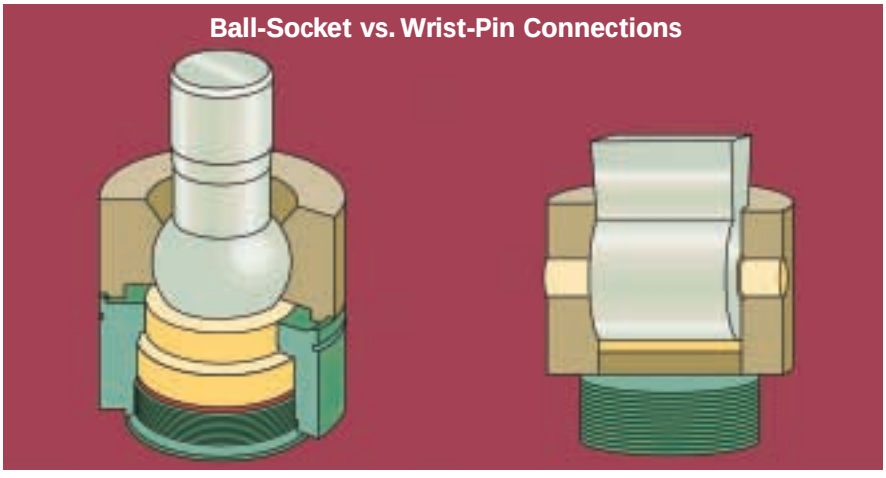

Fig. 1—The ball-type slide design used in the Aida NSU press installed at Bradley uses a spherical ball seat (left) with a load-carrying area more than twice that of a conventional wrist-pin configuration (right). The ball design's larger load-carrying area is said to distribute forces evenly to provide greater off-center loading and high blanking snapthrough capability, thus reducing wear and maintenance on suspension-point components in compression, tension and off-center-loading conditions. Wrist-pin connections concentrate force at two points, thus accelerating wear, according to Aida officials.

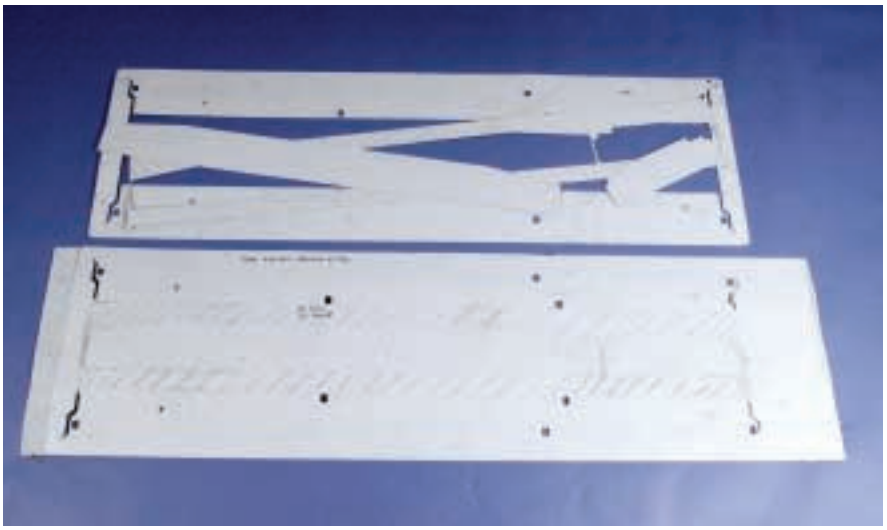

Fig. 2—A ball-socket design forms a key component of Aida's hydraulic overload protection (HOLP) system. Bradley compared the advanced HOLP design in the NSU press to a 200-ton stamping press equipped with a relief-valve-type overload protector during testing of a new die built to complete multiple cuts on 0.030-in.-thick material. When Bradley employees positioned the new die on the press with the relief-valve-type overload protector and initiated the stroke, the tonnage exceeded press capacity and released the overload protector. While the press remained protected, the ram still traveled far enough to complete the cuts and stamp the part (top). But when employees placed the die on the new press and initiated the stroke, the HOLP reacted quickly and the material remained uncut (bottom).

Improved Load-Carrying, Die-Protection Capabilities

Assisting in increased die life is design of the ball-and-socket connection, an Aida exclusive. The NSU's ball-and-socket suspension (Fig. 1) eliminates the maintenance costs associated with traditional wrist-pin slide-connection technology, according to Aida officials. It allows press equipment to withstand the rigors of heavy stamping by providing an increased surface area to transmit high forces. The ball design's load-carrying area reportedly is more than two times greater than the wrist-pin design, providing higher reverse-load capacity and reducing wear on suspension components. The ball-and-socket suspension maintains a full load-carrying area riding on a near-zero-clearance oil film.

The ball-socket design also is a key component of Aida's hydraulic overload protection (HOLP). Bradley compared the HOLP design in the NSU press to a 200-ton stamping press equipped with a relief-valve-type overload protector during testing of a new die (Fig. 2).

"Die protection is especially important due to our investment in new dies," Boeck says. The new die was built to complete multiple cuts on 0.030-in.-thick material. When Bradley employees positioned the new die on the press with the relief-valve-type overload protector and initiated the stroke, the tonnage exceeded press capacity and released the overload protector. While the press remained protected, the ram still traveled far enough to complete the cuts and stamp the part.

"When we put the new die on the NSU and initiated the stroke, HOLP reacted so fast that the material remained uncut," says Boeck. "That showed us that HOLP would protect the press and our dies."

The HOLP system operates as much as 10 times faster than other systems currently available, according to Aida officials. The slide connection itself operates as a high-speed valve, eliminating pressure relief valves and large hydraulic flow systems found on older-design presses that employ wrist-pin and saddle-bushing connections. **MF**