

# Link Motion Press Speeds Auto Supplier's Production



When this stamper received a contract from GM, it needed the right presses—and fast!

When Presmex Automotive Stampings, S.A. de C.V., and Formex Automotive Industries, S.A. de C.V., secured three contracts with General Motors, the company faced the challenge of finding two, 1000-ton transfer presses that could support the job's rigorous production schedule. Press deliv-

ery time was also a critical factor for Presmex. The company found an integrated turnkey solution with AIDA Dayton Technologies Corp. (Dayton, OH).

Located in Ramos Arizpe, Coahuila, Mexico, Presmex does stamping and assembly work for the automotive



Figure 1. The system includes a Gudel Transfer System, a flexible transfer system that provides maximum productivity and strokes per minute.

**FORMING &  
FABRICATING**



Reprinted from Forming and Fabricating -November, 2000



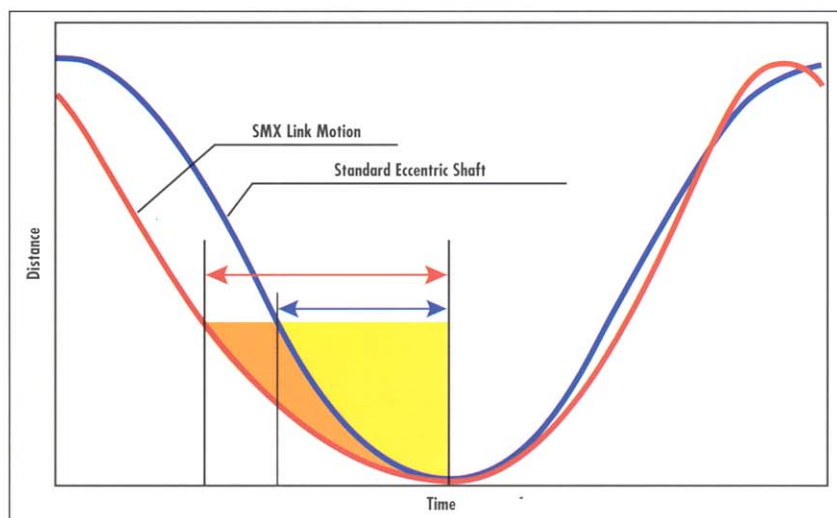


Figure 2. Comparison of the slide motion of the SMX link motion drive and a conventional mechanical crank press. The link motion spends up to 30% more time near the bottom of the stroke, giving the stamped part more time to set.



Figure 3. Access PLC-based control allows functions such as slide adjustment, slide counterbalance setting, and press speed to be performed automatically by job number.

industry. In 1998, Presmex was awarded three contracts by General Motors. Presmex was to produce chassis for General Motors' GMT 800 program, comprising the Suburban, Yukon, and Tahoe models, as well as a variety of stampings and subassemblies for the GM 250 and 257 programs. The 250 program supports the Aztec and the 257 program provides key parts for the Rendezvous, an SUV.

A number of stampings are also used by sister company, Formex, located on the same site as Presmex.

for reliability, but the capability to deliver the presses on time was also an important consideration for us. At Presmex, we don't order presses unless we have secured job contracts. We also needed a supplier that could provide us with an integrated package and the necessary customer support."

In September 1999, Presmex brought two AIDA SMX 1000-ton (9 MN) straight-side presses online to work primarily as stand-alone work-centers and launched production of

parts for the GM contracts. The presses run 24 hours a day, six days a week.

"We provided Presmex with a two-press system that allows the line to be run individually as two 1000-ton (9 MN) transfer presses, each with its own blank destack feeder," said Bill Puryear, AIDA's executive vice president and general manager. "When extra tooling stages are required, the line can be run as a single, large transfer press by initiating the intermediate stage between the two SMXs and running the presses in a continuous, synchronized operation."

The package includes a Gudel Transfer System (Figure 1) with free programmable dimension in 3-axis (transfer, clamp, and lift pitch) to give Presmex greater flexibility. Gudel is a Swiss automation supplier. "This was the first time we worked with a third party to use an outside source for automation," Puryear says. "The alliance allowed us to provide Presmex with a flexible transfer system for maximum productivity and strokes per minute."

According to Puryear, AIDA also coordinated full rigging and erection for the system and provided on-site project management and translation services, American-based off-site project management, and on-going support for the full package. "We took a concept from our customer and turned that idea into an actual product," says Puryear. "That required us to successfully marry all the necessary components and coordinate activity between Gudel in Switzerland, Aida Engineering in Japan, and AIDA Dayton Technologies in Ohio. The work we invested on the front end of the project allowed us to meet Presmex' needs on the back end."

Designed especially for stampers who need the accuracy, reliability, and corresponding stroke lengths required for production of large parts, SMX offers massive construction for high rigidity. Slide and bed deflection have been rated at 0.0015 in./ft (0.126 mm/m).

"We are currently at full parts production with the SMX and have found part quality to be superior," says Presmex's Hugo. AIDA's patented link motion with a reduced form speed allows the SMX to offer superior plastic forming of metal components by main-

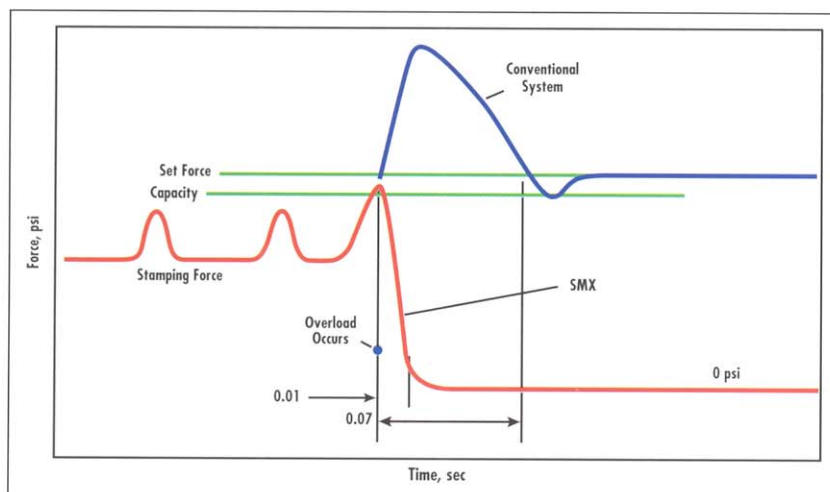


Figure 4. Hydraulic Overload Protection (HOLP) protects die and press components beyond the level provided by conventional presses.

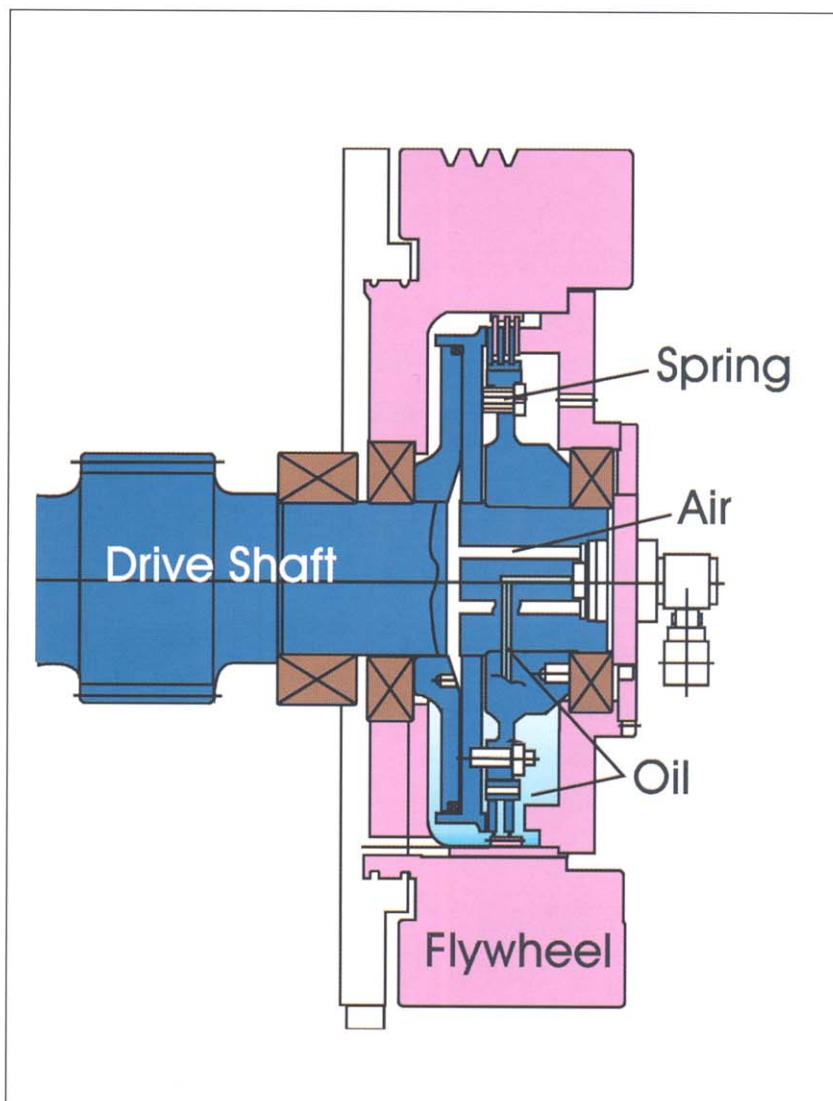


Figure 5. The wet clutch is equipped with a hardened and ground main drive gear and pinion to reduce backlash and maintenance while extending gear life.

taining the press slide near the bottom of the stroke for more crankshaft rotation. Punch velocity is reduced and pressure is maintained on the work-piece longer. Metal has more time to flow because the material is in the stroke's work portion about 30% longer. The press' link motion uses this additional time to allow the part to "set" dimensionally, dramatically reducing springback and improving the part's dimensional stability and accuracy (Figure 2).

"SMX technology is very advanced, yet so simple to operate," Hugo adds. For Presmex, ease of operation and training has been an unexpected benefit. "Our operators love this press," he says. "We literally were able to take people who knew nothing about presses and turn them into efficient operators within a year."

SMX comes equipped with Access, a PLC-based control developed in direct response to customers' needs for greater flexibility. A standard feature on the SMX series, Access control provides sophisticated diagnostic and fault-finding capabilities. The control's recipe management also allows such functions as slide adjustment, slide counterbalance setting, and press speed to be performed automatically by job number (Figure 3).

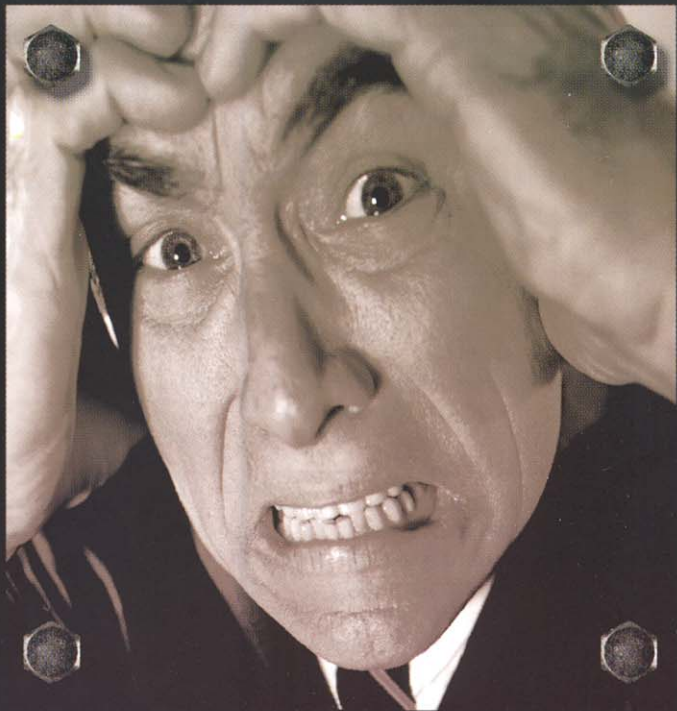
In addition to easy operation, SMX is equipped with an overload protection system (Figure 4) that uses a patented metal-to-metal seal design for fast response time, protecting both the customer's tooling and the press. SMX's wet clutch and brake (Figure 5) gives virtually maintenance-free operation. The wet clutch with a hardened and ground main drive gear and pinion reduces backlash and maintenance while extending gear life.

With AIDA's integrated stamping press technology, Presmex is able to meet the increasing demands of customers such as General Motors. "Our parts volumes are increasing," Hugo said, "so we've ordered a 600-ton (5 MN) PMX, another SMX 1000-ton (9 MN) straight-side, and a coil feed press."

For more about AIDA's presses, visit their website via [www.sme.org](http://www.sme.org). Select, in order: Magazines, Forming & Fabricating, November 2000 issue, and "Link Motion Press Speeds Auto Supplier's Production." □

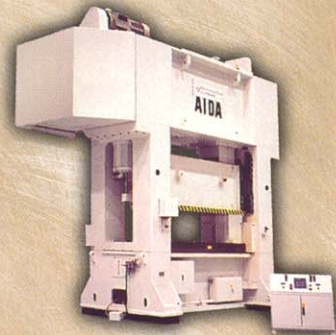


**WE  
HATE  
ROCK  
AND  
ROLL.**



**AIDA® WIDE-SPACED CONNECTIONS MINIMIZE THE AFFECTS OF OFF-CENTER LOADS.** When the press and its components rock, roll, tip, and shake even a little bit, accuracy, part quality, and die life boogie on out the door. And off-center loads exaggerate these tendencies. We hate that – and designed the wide-spaced connections of the PMX to drastically reduce the affects of off-center loads.

Moving the connection points toward the outside of the press increases the stability of the slide, enabling it to resist the affects of off-center loads and maintain accuracy. The inherent stability of the wider connection is further reinforced by the mass of the AIDA® press frame and components, which are up to 25% larger than those of conventional presses.



It all adds up to increased part quality, accuracy, and die life. And to our ears, that's the sweetest music there is. To see all the advantages the PMX series and AIDA has to offer go to [www.aida-america.com](http://www.aida-america.com) or call 1-937-237-2382 for more information.



A subsidiary of



AIDA Engineering Ltd., Japan

**BETTER PRESSES.  
BETTER BUSINESS.**

To receive your free issue of AIDA Tech,  
visit [www.aida-america.com](http://www.aida-america.com)