

# MECHANICAL PRESSES OFFER FLEXIBLE TRANSFER SOLUTIONS FOR LATEST INDUSTRY TRENDS

By Dennis Boerger, Product Manager

Lean manufacturing practices in general and the growth of more specialized demands in markets like the automotive industry, are requiring stampers to implement press systems that are flexible, able to manipulate parts and increase production output while reducing waste. Modern press builders like AIDA have designed transfer technology capable of meeting these needs. In addition to dedicated transfer presses, straightside and gap frame presses are stepping up to the plate as efficient, versatile transfer systems.

AIDA's Concept to Production Resource (CPR) Program gives stampers a turnkey solution that functions to specification from the first production run and beyond. By combining application engineering, integrated automation, on-time delivery, lower long-term equipment costs, certified safety and regulatory compliance, startup supervision and other details, AIDA is able to deliver the elements needed to help stampers optimize pressroom operations.

## The Transfer Press System

Transfer presses like AIDA's TMX series press are best suited for lean manufacturing practices or "just in time manufacturing" demands which require production of a maximum number of parts in a limited time frame. In addition, transfer presses can be used to meet the more specialized requirements of the automotive industry which include:

- Large complex parts
- Complete assemblies
- Tailor-welded blanks
- Parts from thinner, stronger materials

A stamper who is considering a transfer press should use the following criteria as a basis for selection. A transfer press should have the ability to eliminate production problems so that it is not necessary to stop the press. The press should also be able to enhance the work ratio and increase unit/time productivity by reducing the time it takes to change a die and speed up the production system.

AIDA's TMX offers faster production speeds coupled with quick-die changing and continuous blank feed systems to increase machine productivity and decrease downtime. The TMX has the capability to sense and correct double blank mis-feeds and reload without the operator having to stop the press, further raising production levels. AIDA's blank discharge device automatically discharges the extra blank when a double blank is detected. On presses outfitted with a blank hold device, blanks are automatically held while the blank stack is changed – eliminating the need to stop the press while chang-



### TMX

*AIDA's TMX offers faster production speeds coupled with quick-die changing and continuous blank feed systems to increase machine productivity and decrease downtime.*

While these options give stampers the ability to tailor systems to their individual needs, choosing the appropriate transfer line can be challenging. Two basic criteria - part complexity and production volume – can provide stampers with a starting point for purchase decisions. Finding a press builder that can act as a single source for the press, automation, ancillary equipment, integration services, installation, runoff and post installation support not only simplifies the selection process but also the purchase through installation and run-off procedure for the end user.

ing stacks of blanks. Output is also increased with quick die changes. With AIDA's Data Bank formula, a die change on even a 2500-ton press can be performed in less than five minutes.

Production speeds and efficiency are raised to higher levels through the ability to manipulate parts. In contrast to conventional transfer presses, the TMX's electronic servo transfer system allows the operator to adjust the motion profile for the transfer pitch, the transfer bar clamp motion and the lift motion. By adjusting all three profiles and retiming them for each part or job, stampers can achieve optimal operating speed. In addition, once job programs have been written, they can be stored in the TMX's job memory eliminating the need to reprogram the press.

Featuring an extremely rigid tie-rod frame, the TMX's eight point square slide guide and wider suspension point spacing combine for unmatched resistance to slide tipping from off-center loads. Dynamic accuracy during stroking and greater repeatability are also achieved. AIDA's TMX is available in both standard crank and link motion designs. AIDA's link motion can reduce drawing velocity by up to 40 percent and remains slow through the bottom of the stroke – resulting in improved part quality and enhanced tool life.

## The Straightside Press System

When stampers consider an automated press system for coil fed progressive-die operations or transfer-die operations with transfer feeds or require optimum slide velocity for drawing or forming operations, the press of choice should be a straightside. Double crank straightside presses (ranging from 300 to 3000 tons and more) are used to produce massive parts requiring corresponding stroke lengths. When used in a tandem line with automation they can deliver improved productivity as parts move from press to press.

AIDA's SMX, double gear link drive press, is designed for deep drawing applications and offers full capacity at one half inch off bottom. Production and throughput are maximized because the SMX can offer a constant slide velocity through the working portion of the press stroke.



**SMX**

*When used in a tandem line with automation, the SMX can deliver improved productivity as parts move from press to press.*

The SMX has wide spaced connections which help reduce slide tipping, maximizing the accuracy with which the punch enters the die. High rigidity construction contributes to long die life and better part quality. The SMX is designed with 0.0015 inches per foot of deflection for the bed and slide. Improved die life is generated by the SMX's ball connections in machine capacities of 1,000 tons or less.

In a two or more press system, the SMX can be run individually or, when extra tooling is required, as a single large transfer press by initiating the intermediate stage between the presses and running them in a continuous, synchronized operation. Transfer system programming can optimize the acceleration/deceleration curves for maximum productivity and strokes per minute. A free programmable dimension in 3-axes capability (transfer pitch, clamp pitch and lift pitch) can increase flexibility.

Straightside unitized frame presses (usually 200 to 400 tons) like AIDA's NSU can be used for multi purpose applications. When used as a transfer unit, two presses can provide up to 12 tooling stations with material feeding left to right through both presses. When used individually, the first press feeds left to right with up to six tooling stations. The second press can stamp a different part feeding material right to left with up to six tooling stations. This combination can provide more tonnage capacity without the capital equipment costs of a dedicated transfer system.

## The Gap Frame Press System

A gap frame press transfer system also offers flexibility with an investment cost one-third that of a dedicated transfer press system. Typically large parts and high tonnage blanking operations are not good candidates for the gap press. Drawn parts typically can't exceed four inches. A narrow front-to-back bed area limits the size of the die that can be used.

However, many stampings produced in progressive or transfer dies can be successfully run on a gap press. AIDA's gap frame series presses can be combined with an automated transfer system to offer a line that is high tech, cost effective and versatile. Such a line carries a number of advantages. Higher material yields are possible because blanks are used. Gap transfer presses don't require one end of the product to be consistently connected to the coil during the forming process. This feature delivers greater freedom when handling complex forming operations. Because the part is conveyed in mid-air between stations without touching the dies, die structure is simpler and less expensive.

With the ability to connect as many gap presses as needed, the transfer system provides the capability to handle a wide range of stampings. Yet the physical size of the presses is small, making the line suitable for factories with low ceilings. The system does not require large accessory equipment or a pit, making press layout easy to change. Transportation and rigging costs are minimal. For accurate parts and extended tool life a gap press must offer an extremely rigid frame, low bearing clearance and small angular deflection.

AIDA's NC Series presses are especially designed for stampers in the automotive, appliance, hardware and electrical industries. AIDA's NC1 single point and NC2 two point gap frame presses offer an angular frame deflection rating under full load that exceeds industry standards by two-thirds. Unlike other manufacturers, AIDA's gap frame presses also offer the lowest bearing clearance. These features deliver extended tool life and more accurate parts while minimizing part burr, noise and vibration.

AIDA's unique HOLP or Hydraulic Overload Protection, helps reduce operational costs. Stampers can easily adjust the HOLP from one hundred and ten down to sixty percent of press capacity to provide protection that matches the capacity of the tool being run. The HOLP can release when a tool is improperly set or gets too dull helping to avoid production of bad parts. The HOLP can also be released at any time using AIDA's "unstuck" switch. This feature frees a slide "stuck" on the bottom almost instantly. Recovery time to reset the overload takes only seconds, so tool set up and press down time are significantly reduced.

A wet clutch, offered as a standard feature on AIDA gap presses, provides the capability to achieve high single stroking rates without the clutch overheating when using the gap frame in hand-fed operations or with automation.

The volume of air used with each stroke of the gap frame press is reduced by fifty percent or more

when compared with the air friction clutch. The AIDA pinion and gear are machined to close tolerances to minimize operating backlash. AIDA also offers a full line of automation for its gap frame presses including coil feeding, blank feeding, pick and place robots and transfer systems.



#### **GAPPRESSLINE**

*A gap frame press transfer system also offers flexibility with an investment cost one-third that of a dedicated transfer press system.*

The transfer systems available today offer stampers options suited to meet the demands of constantly changing industry requirements. Depending upon budget and part needs, these systems make it possible to select the appropriate equipment for the job at hand yet provide the flexibility to perform a variety of tasks. In addition to critical production solutions, AIDA also provides key technical resources through its website that can help stampers gain a better understanding of how to maximize pressroom operations. By visiting [www.aida-america.com](http://www.aida-america.com), stampers can request AIDA's newest white paper "Transfer Technology Systems." The white paper is the latest addition to AIDA's library of white papers on subjects ranging from Hydraulic Overload Protection to Link Motion and ServoForming.

#### **AIDA-Dayton Technologies Corp.**

7660 Center Point 70 Blvd. • Dayton, Ohio 45424-6380  
Phone: 937-237-2382 • FAX: 937-237-1995

[www.aida-america.com](http://www.aida-america.com)

Circle Reader Reply Card #91