

Trim the FAT from Your Pressroom

Idle presses don't make parts, so here are several products aimed at keeping the presses running—motorized passline-height adjustment, shaker conveyors and underground conveyors to automate scrap handling, die-locating pins, automated part-bin exchange, and centralized lube mixing and distribution.

BY TODD WENZEL

In an industry that continually changes, manufacturers often rely on new technology to increase their competitive edge. While technology solutions can improve press operations, a closer inspection of a more ordinary pressroom element—waste—can yield surprising dividends with little or no investment. Waste resides in every pressroom, and can appear in some surprising places. Minimizing waste will raise productivity and allow stampers to capture larger profit margins.

Before stampers can realize those benefits, it's important to first define pressroom waste. Technically, companies only make money when their presses are actually producing parts. A press producing quality parts to meet a customer's needs is the one item in a pressroom not considered waste. Therefore, for the sake of this discussion we'll consider all activities outside actual part production as waste. Helping stampers to focus on production and strip away everything else allows them to take dramatic steps toward streamlining work processes.

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Streamlining Setup

Consider the time it takes an operator to adjust the passline height of a press feed during setup. The best solution is to eliminate the need for adjustment by making it possible for all dies to share a common passline. But what if it isn't possible for a manufacturer's dies to share a common passline? Examining the steps involved with the task can still reduce waste.

Typically, feeds attach to the press with mechanical bolts. To loosen the bolts, the operator must find the proper wrench and walk the equipment's perimeter to reach both sides. To adjust passline height, the operator typically uses a hand crank, a very slow manual process. The process takes more time when the company fails to provide a scale or reference to assist in setup, requiring the operator to eyeball the die and feed, a cumbersome process dependant upon operator skill. And, once he sets the proper height, the operator must circle both sides of the feed again to retighten the bolts. Use of a reference scale—an easy-to-read scale and pointer—allows the operator to quickly return the feed to a predetermined height.



Adjusting passline height takes more time than necessary when the company fails to provide a scale or reference to assist in setup, requiring the operator to eyeball the die and feed, a cumbersome process dependant upon operator skill. Use of a reference scale—an easy-to-read scale and pointer—allows the operator to quickly return the feed to a predetermined height.



Press operators can reclaim production time when companies install scrap-handling systems designed for quick setup and efficient handling of scrap. For example, shaker conveyor systems equipped with trays (shown here) that don't require clamps or tools for attachment can minimize setup time. Photo courtesy of Dura-Glider.

To further streamline these steps, particularly on larger feeds, shops can motorize the passline-height adjustment to eliminate hand cranking. It can attach the feed to the press with hydraulic clamps that can be released from the operator's control panel, eliminating the need to walk around the equipment.

Another way to help operators reclaim production time is use of a scrap-handling system designed for quick setup and efficient handling of scrap during a press run. For example, shaker conveyor systems, equipped with trays that don't require clamps or tools for attachment, can minimize setup time. And, using underground conveyors instead of totes—especially on larger presses that produce scrap rapidly—can further reduce waste during production.

Locating dies in the press during setup is another time-consuming task that can lead to hours of downtime if the die is improperly aligned. By locating pins in the bolster and matching mating notches on a die subplate, an operator guarantees quick, perfect die location, fast thread-up and easier feeding of material.

Automated Part-Bin Exchange

In keeping with lean-manufacturing philosophies, today's job shops experience a steady increase in industry demands to run batches in smaller bins. They typically use batch counters to stop a press once it reaches the piece count. The press then remains idle until the operator can exchange the full bin for an empty one and restart the press. More often than not, the operator becomes busy with another task, allowing precious production time to slip by. Automating the part-bin exchange effectively eliminates the waste associated with press

stoppage. The press keeps running while parts are diverted at a predetermined count into empty bins. A significant increase in productivity results, especially in facilities where operators run two or more presses at a time.

In addition to running batches in smaller bins, customers require higher quality and fewer defective parts per million. That means more quality checks. At the least, operators should conduct quality inspections at their presses. Requiring operators to take sample parts to a central inspection location subtracts from production. These wasted minutes escalate in shops where operators must take multiple pieces to the quality-control department simultaneously.

Allowing operators to inspect parts at the press minimizes wasted time. In some instances, shops can further optimize part-inspection procedures by building part inspection, of critical dimensions and features, into the tool itself. With built-in inspection, 100 percent of the parts produced by a press are checked for defects while the press runs, with no downtime for the inspection itself. Additionally, errors are caught much more quickly, resulting in huge scrap and downtime reductions.

Why Carry Lube Buckets Across the Floor?

Hand-mixing die lubricants with water and carrying the lube to the presses also consumes much press-operator time in many plants. Hand-mixing and transporting also can produce secondary problems. For example, improper mixtures can create a reverse emulsion and reduce die-lube performance. Mixture ratios that use excessive oil waste expensive concentrate, while mixtures that without enough oil can translate



To make the press operator's job easier and eliminate wasted steps during setup, TCR Integrated Stamping Systems expanded a press control to integrate control of ancillary equipment such as the straightener and feeder. Photo courtesy of Link Systems.

into premature die wear and extra die maintenance. Both problems mean unnecessary costs for the manufacturer. Installing equipment to mix the oil eliminates manual labor, provides optimum die-lube performance and ensures correct lube mixtures.

When operators have to carry 5-gal. buckets of oil to the presses, wasted time isn't the only drawback. Ergonomic issues may result from spillage, and spills mean additional housekeeping time. Centralizing the mix system and distributing oil to the presses through a network of pipes avoids unnecessary delays in production by eliminating idle press time while an operator walks the floor carrying die lube. It also can remove a possible source of spillage.

Finally, requiring operators, during setup, to manually position oil nozzles to direct lubrication to the die not only eats up an operator's time but can lead to premature die wear and increased maintenance if nozzle positioning is not precise. Permanently installing lube nozzles on dies automates this process and ensures that lubrication consistently reaches the right locations. MF