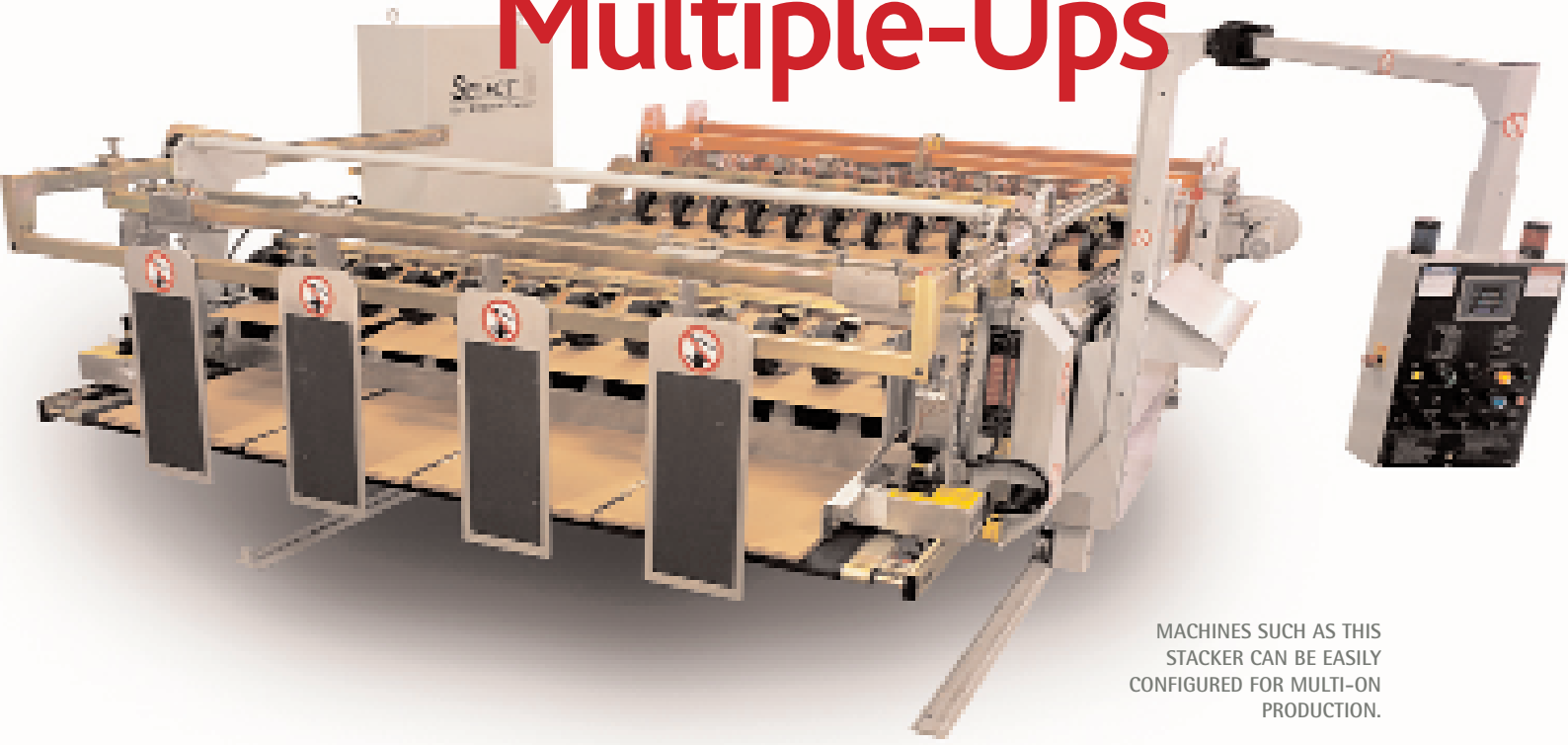
Having successfully tackled downtime, rotary diecutter operators are now focussed on increasing uptime. By Chris Heusch, Arch Inc.

Running Multiple-Outs, Multiple-Ups



MACHINES SUCH AS THIS STACKER CAN BE EASILY CONFIGURED FOR MULTI-ON PRODUCTION.

Owners and operators of rotary diecutter lines (as well as case maker lines) have, in recent years, made great strides in reducing downtime. Set-while-running modern machinery, more accurate computer setup and digital controls, and mechanical improvements, such as mechanical cutting die mount and quick plate lock-up, have supported these efforts.

The focus has now shifted to a higher use of the valuable uptime available for production. Usage can be increased with higher run speeds, but the greatest opportunity lies in the format utilization, using as much of the cylinder surface as possible on each rotation.

A 66- x 120-inch rotary diecutter has the blank format of just over 50 square feet, or the potential to convert 50 square feet per feed. For obvious reasons you can't use every inch of the cylinder surface, yet according to FBA/TAPPI Productivity Surveys, the average feed converts closer to 13 square feet, or 25% of the available potential. So there is a significant amount of productivity, and profitability, available at very little additional cost to the operation.

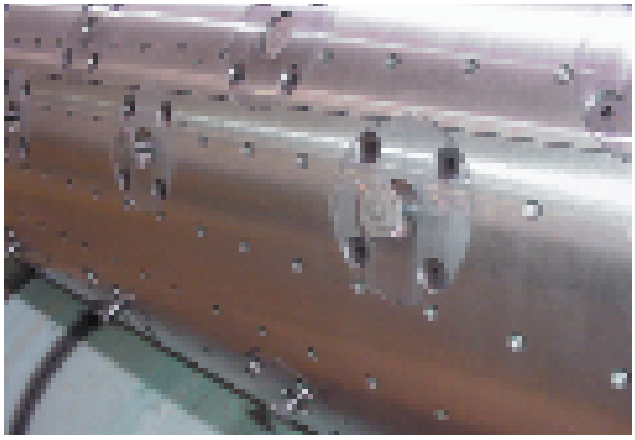
Opportunities for Improvement

So why don't more converters take advantage of the full capacity of their machines? Reasons/obstacles appear to be referenced in three groups: stackers and other handling equipment are unable to handle large volumes of diecut blanks being output by the diecutter, pallet and load configuration does not coincide with the ideal number of diecut blanks "out" and, of course, there is the perceived cost of tooling.

While the in-feed side of a diecutter line should be able to easily handle ever larger sheets, the stacker, on the other hand, must still allow handling of small diecut blanks. The advent of separators has reduced this bottleneck significantly, along with non-stop bundle stackers, which can handle "breakable" bundle sizes at full machine speed without necessitating feed interrupt.

Such a setup of bundle stacker and separator, combined with an automatic/robotic load former or palletizer, also provides the answer to various load configurations. If diecut blanks are to be stacked two-across on a given pallet, but the optimum number of

QUICK MOUNTING PLATE AND DIE SYSTEMS HELP REDUCE CHANGEOVER TIMES.



outs on the diecutter is five, the load former can easily compile two-out pallet loads from five-out bundles. An operator or helper using a conventional palletizer could also accomplish this feat, although it adds a great deal of labor and associated costs to the operation.

Increasing Uptime

The savings to be realized by maximizing the number of outs and ups are significant (outs = across the machine; ups = around the cylinder; on = total diecuts per sheet). Even taking slightly lower run speeds into consideration, there are numerous savings.

Common knife on multiple outs reduces the amount of trim waste per actual box, therefore, saving on material costs.

Run time savings due to reduced number of blanks fed are tremendous, even if you must run slightly lower speeds because your system is not set up for optimal handling of multiple outs. (A situation that can often be resolved without a significant investment.) If an order for 3000 boxes run one-on at a run speed of 6000 sheets per hour it takes 30 minutes of machine up-time. The same order of 3000 boxes run three-on at a speed of 4000 sheets per hour takes only 15 minutes. Is a gain of 15 minutes of "free" machine up-time valuable to an operation? It absolutely is, especially when you consider that this extra productivity goes straight to the bottom line in the form of profit.

In addition to the uptime gain, there is significantly enhanced utilization of consumables on the machine center: feed wheels or belts, feed rollers, doctor blades, anvil covers, all are better used across the whole machine width. Being worn evenly across the machine, consumables such as the feed roller and anvil covers, also improve quality of product and process.

Finally, look at the maintenance cost distributed over total square feet or value of product produced between maintenance intervals.

Added Profit

The combined savings far outweigh the additional tooling costs incurred in most cases.

Where fully applied, this logic will also lead to reduced cycle times. Remember the order for 3000 boxes? Assuming a setup time of 20 minutes, the cycle went from 50 minutes to 35 minutes in our example. This reduction in cycle time and increase in output may well eliminate the need for additional production lines and lead to significant savings in overall facility, maintenance, personnel and supervision cost.

As reducing and controlling cost and overhead is ever more critical to profitability and survival, it is important that we take advantage of any opportunity to increase productivity so long as it does not sacrifice safety or quality. If such opportunities are virtually free, why pass them by?

When calculating the practicality of multi-on production, there are many variables that must be considered in order to realize your full potential. These include machine burden rates, additional production capability, faster run speeds, material savings, tooling costs, etc. I supply a spreadsheet to all of my customers who take these and many more variables into account, allowing them to quickly analyze the feasibility and potential savings for multi-on runs.

Is multi-on production a viable alternative for all jobs? Of course not, one size never truly fits all. However, the typical box plant can take advantage and profit from multi-on production on many of the jobs they run.

So, let's have a bon fire with the old one-out cutting dies. Well, most of them anyway.

Chris Heusch is president of Arch, Inc., a Utah-based company that provides process analysis, printing consultation, training and equipment evaluation service to the corrugated industry. He can be reached at 801-635-9511 or Chris@archlogic.com.