

*"It's simply a matter of survival"*

## **How the latest servo-based press transfer systems maximize productivity, flexibility, availability, and profitability**

Just like profit margins, the margin for error in the metalforming industry is getting tighter and tighter. If you choose the wrong technology – or even worse, hold off on making new technology investments – your pressroom's production capabilities will quickly become uncompetitive. And these days, once you get behind, it's almost impossible to catch up.

So for companies like Venest Industries, an auto parts supplier based in St. Catharines, Ontario, selecting the right technology is now seen, literally, as a life-or-death decision. "It's simply a matter of survival," says Shaun Reycraft, Program Manager at Venest. "We have to scrutinize every operation to see how we can maximize efficiency and stay at the technological forefront. If we don't, we risk losing a substantial amount of profitable business."

Therefore, when Reycraft and his team went searching for an automated transfer system for a newly acquired 7,000 kN press, they looked long and hard at the alternatives, eventually gathering no less than a halfdozen detailed proposals. "We knew the more we could get out of a transfer system, the more we'd be able to get out of our new press – in terms of productivity and ROI," Reycraft explains. "That's why we were determined to find a system that offered the most potential with the fewest compromises." After



careful evaluation, they chose the AP&T SpeedFeeder Transfer system for the 7,000 kN press. Now, a year after the SpeedFeeder Transfer system came on line, all the evidence indicates that they made the right decision.

### **Logistical Challenges**

Meeting the specification for Venest's new press transfer system was not as straightforward as it might first appear. The press – a four-year-old 7,000 kN unit acquired from another subsidiary of Magna International, Venest's parent company – was intended to replace a 3,500 kN transfer press equipped with a cam-driven transfer system. As delivered, however, the PTC press was designed in a pure progressive die configuration, and set up to produce a single part. "It was the exact opposite of what was needed, which was a configuration that could accommodate a broad range of both progressive and transfer jobs, Reycraft recalls.

This operational flexibility significantly complicated the transfer system specification. The new transfer system had to be parked away from the machine bed during progressive operations and during die changes, so that new dies could be delivered to the press via an overhead crane. "That was our basic challenge," says Reycraft. "Getting a system that would reach in when it was needed, and get out of the way when it wasn't." Space constraints provided other potential headaches. The new 7,000 kN press was installed in the area previously occupied by the 3,500 kN unit, putting available room for the transfer system at a premium, especially when the transfer units were parked away from the bed during progressive operations or die changes.

Of the half-dozen proposals presented to meet these requirements, the one submitted by AP&T addressed all the challenges. "The system is space-efficient and it showed AP&T clearly understood what we needed," Reycraft states.

AP&T's proposal was based on an adap-

tation of their modular SpeedFeeder Transfer system. Introduced in the mid-1980's as one of the first servo-driven systems, AP&T's transfer automation technology is now in its sixth generation. According to Anders Vesterholm, Sales Account Manager for AP&T, "With each generation of our servo technology, we take a good thing and make it better. For the sixth generation, we concentrated on further simplifying and standardizing our designs, which has allowed us to reduce each module down to about sixty total components."

The modular nature of the AP&T system was a feature that Reycraft liked. The SpeedFeeder system is built around four standardized SpeedFeeder 'press robot' transfer units, with two units mounted on either side of the press. These SpeedFeeder units, in various sizes and combinations, are used for every AP&T press automation system, whether it's press-to-press, in-press transfer, in-bed transfer or a destacker. "Thanks to the modular approach, we don't have to reinvent the wheel with each application," Vesterholm points out. "This means we can design, build and install systems faster, while paying more attention to the unique characteristics and challenges of each individual application."

In the case of this application, the primary challenge involved engineering a mounting for the system's Y-beams that would allow unrestricted transfer operations in the tight quarters provided – including the complete retraction of the transfer units during die changes and progressive operations. Unable to mount the beams in the ideal location between the press columns, AP&T's application engineers had to mount them on the press's external frame. In their final design, the AP&T transfer units took up considerably less space than the systems submitted in the other proposals. "I think this is what really proved to Venest that we were truly paying attention to their needs," Vesterholm remarks.

But it was more than hardware alone

that attracted Venest to the proposal. They were also impressed with the comprehensive way AP&T approached the project. "We had never worked with Venest before, so we wanted to make them familiar with how AP&T designs, builds and operates in the field," says Vesterholm. "We showed them similar applications, both old and new, introduced them to other customers, and took them to our headquarters and plants in Sweden."

Installation was another area where Venest set some high goals – and AP&T met them. "We gave them a very small window," Reycraft admits. All work, up to system commissioning, had to be accomplished during the plant's two-week shutdown in July, 2005. Thanks to the modular nature of the system, AP&T's crew was able to get the system up and running within the deadline. "Once the mountings were installed, everything went like clockwork," Reycraft says. "Some debugging was needed once production started, but everything was up and running on time."

### ***"Improvements' alone are no longer enough"***

The new transfer system has allowed production speeds to increase by nearly 50% in some cases, according to Venest. Where the old press maxed out at 15 strokes per minute, the new press/transfer system combo often runs at speeds up to 22 strokes per minute, and Reycraft estimates the average productivity for all transfer jobs is about 20 strokes per minute. "When you're talking about hundreds of thousands of parts per year, a difference like that really adds up," he says. And while Reycraft is careful to point out that the productivity improvements are not only due to the transfer system, he clearly believes that the AP&T SpeedFeeder Transfer system is enabling the press to operate at its full potential.

Part of unlocking that potential has to do with maximizing the press's operational flexi-



bility. The new transfer system provides infinitely variable placement all along the X, Y, and Z axes, and the Siemens-based control system offers an unlimited range of programmability within those parameters. With a user-friendly graphic interface the transfer system can be easily programmed to accommodate virtually any part that can fit in the press. Currently, the transfer system is handling parts that range in widths from about 100 to 1,200 mm; everything from a bracket that weighs barely half a kilo to an 8 kg. cross-member.

While the old 3,500 kN press was constantly in demand, it could only handle three jobs. By contrast, the new 7,000 kN unit is currently running twice as many dif-

ferent transfer jobs, with more to be added this fall. All this is in addition to the work the press does with progressive dies, which accounts for nearly 20% of the work done on the press.

"If you can do every job faster, you can do more jobs on the same machine," Reyecraft says. However, there are other factors that also contribute to the new system's enhanced productivity. For instance, the transfer systems' ability to park away from the press bed permits fast and easy changeovers to different or progressive operations – further increasing the press's uptime. Also, the transfer system is virtually maintenance-free; the only preventative maintenance requirement is bearing lubrication. When the

occasional operational glitch has arisen, AP&T engineers in Sweden have been able to troubleshoot the system in Canada via modem and quickly resolve the issue. Reyecraft sums it up by saying, "With the cutthroat competition out there, you've got to be the first through the door with the best technology. Any of the proposed transfer systems would have helped us improve productivity over the previous press. But 'improvements' alone are no longer enough. These days, you've got to maximize your productivity and your ROI to stay competitive. And we're confident the transfer system we chose is allowing us to do that."