

# TRANSICON

## TRANSICON CONTROL SYSTEM OVERCOMES PRESSING SAFETY ISSUES AT STEEL & ALLOY

4 June 2007 – *Operator safety is a critical consideration for any company running power press equipment – ultimately over-riding all other operational and financial considerations. However, when UK steel processing giant, Steel & Alloy Ltd selected Transicon, the Telford-based system integrator, to update the control system on one of its press lines, it gained the best of both worlds – increased safety on one hand, as well as improved throughput and reduced costs on the other.*

From its roots in the late 1960s, West Bromwich-based Steel & Alloy has grown to become the largest independent automotive steel processor in the UK. The company sources metal from all over the world and currently handles more than 300,000 tonnes of steel annually. It is an approved processor for both Arcelor and Corus within the UK automotive sector. Steel & Alloy's two West-Midlands sites boast more than 200,000 square feet of processing and storage facilities – along with a wide variety of production equipment including slitting, blanking, press working, shearing and washing and oiling plant – enabling the company to offer a quality, highly flexible service.

Steel & Alloy was among the earliest to provide tier one automotive companies with first operation presswork services – such as the blanking of trapezoidal and irregularly shaped parts – and pioneered the introduction of multi-strand blanking lines and coil fed press lines.

“We started offering this service and soon increased our press blanking capacity following the acquisition of a pair of 500 tonne and 600 tonne presses from Mercedes in Germany,” explains Steel and Alloy's operations director, Max Coleman. “We equipped these with stacking units and subsequently integrated the 600 tonne press into a complete full finish line capable of producing outer skin panels for the automotive industry with precision levellers and a dedicated wash/oil unit.

“At the time, the line featured semi-automated controls, with the press electrics independent from those controlling the stacker, levellers, slitting heads and other ancillary equipment.”

As a result of a major safety initiative at the company, Coleman and his colleagues re-evaluated the equipment and – recognising the safety benefits that could be achieved through completely automating the press line's operation – soon set about establishing a project to upgrade its control system.

*Right: The main control console is located adjacent to Weingarten 600 tonne press. Simply by specifying the pitch distance corresponding to the component to be manufactured, the number of parts required and the component stacking pattern, the Transicon system will automatically calculate the feeds for all the mechanical elements of the line and programme the outfeed stacker system.*



Immediately, the company faced a fundamental choice – whether to ‘piggy back’ additional controls on top of the existing systems, or to go back to basics and replace everything with a purpose-designed, fully integrated solution.

“While the first route initially appeared to be the lower cost option, we were aware that the existing drives, motors and inverters were becoming obsolete,” Coleman continues. “Furthermore, a fresh approach would enable us to standardise on drive equipment and components that were already in use on site.

“The adoption of common drives, PLCs, HMIs and control gear would not only provide spares compatibility, improve availability and help to reduce costs, but also enable operator training to be standardised. In addition, it offered the chance to incorporate diagnostics within the upgraded installation.”

With Steel & Alloy opting for the second route, the success or failure of the project quickly focused on selecting the right supply partner.

“Transicon had previously undertaken a number of smaller control system projects on site and had established itself as a trusted partner,” adds Coleman. “In some ways, the company was the obvious choice. Even so, its final selection followed an exhaustive competitive tendering exercise.”

On appointment, Transicon’s technical director Dave Caple set about analysing the usage of every part of the line in order to enable a technical specification to be compiled. One of the key issues highlighted by Caple’s study was excessive mechanical wear on clutch and brake components within the press, due to its operation in ‘stop/start’ mode to accommodate the parts stacking system.



*ABOVE: The line’s decoiler can be controlled independently via its own free-standing console.*

Prior to this, Transicon designed all control system elements and panels based on a fully integrated system incorporating a zoned safety plc, which would allow safe access to the machine when required. Transicon also undertook as much pre-wiring as could reasonably be achieved before the power was switched off.

“Despite the inevitable glitches and unexpected hiccups that emerged, everything was installed and power was restored within three weeks,” says Coleman. “Following final commissioning and adjustments, the line was back in production – both on time and on budget – by the end of the fourth week.

“Considering the nature and size of the project, and the consequences of overrunning the timing plan, the installation went very smoothly. It’s a testament to the skill and commitment of the Transicon engineers that everything was completed right first time, as well as right on time.”

The line comprises a decoiler which can be controlled via its own freestanding console; a pair of levellers for straightening the strip, followed by a slitting head to trim the raw material to the required width. The strip then passes through a looping pit which acts as an accumulator to accommodate variations in the press feed rate while allowing the steel strip to be continually levelled, before passing through the measuring/feed rolls immediately ahead of the press, where the line’s main control station is positioned. After processing, components are stacked onto pallets by an automatic magnetic stacker, ready for shipment to the customer.

All stages of the process are synchronised by the Transicon system for optimum throughput and minimum operator input.



*ABOVE: The adoption of common drives, PLCs, HMIs and control gear provides spares compatibility, reduces costs and enables operator training to be standardised. In addition, it has enabled Transicon to incorporate numerous additional safety and diagnostics capabilities within the upgraded installation.*

At the start of each new job, all the operator has to do is select the pitch distance corresponding to the component to be manufactured, and specify the number of parts required. After he has confirmed the number of stacks and the spacing between them at the outfeed station, the system will automatically calculate the feeds for all the mechanical elements of the line, including decoiler, levellers, and press feed rate, as well as the required pattern to be employed by the stacker.

Incorporating fully interlocked guarding and numerous additional safety and diagnostics capabilities, the line has performed well since returning to production.

“First and foremost, it has eliminated any potential safety issues associated with the previous controls – which was our primary objective,” says Coleman. “However, the new control system has provided some significant additional benefits. It enables the press to run in continuous mode, reducing wear and maintenance costs, while also providing greater consistency of finished part quality. The system is also extremely easy to use – in no small part due to the close involvement of our operators in the design and layout of the control consoles. So it’s a ‘win-win’ situation all round.”

On the strength of the project’s success, Steel & Alloy has already placed further contracts with Transicon to refurbish another two press lines, as well as upgrade a slitting line at its second manufacturing site in West Bromwich.

“We’re delighted to have established such a strong working relationship with Steel & Alloy,” says Transicon’s managing director, Paul Blake. “Theirs is a business where time really is money, so they appreciate our ability to deliver on our promises, by not only completing projects on budget, but on time as well.”