

## Case study

# Press safety ready to install

## Simotion Safety Unit provides certified control reliable solution

CSA Z142-02 — no one who operates a press in Canada can ignore this abbreviation. The Canadian Standards Association recently defined this new safety standard, which is based on the state of the art and applies to all presses currently operating. The Simotion Safety Unit is certified as meeting the highest standards (EN category 4 and IEC Sil 3) — not just in Canada, but around the globe.

The new code for power press operation was published by the Canadian Standards Association (CSA) in December 2002. New and existing machinery must comply with this regulations by December 2004. The Simotion Safety Unit provides the fastest, simplest, and most cost-effective way to achieve the required upgrades. Install, parameterize — and the retrofit is complete.

The Simotion Safety Unit is a compact press safety controller that integrates all safety functions demanded by the Occupational Health and Safety Act and the regulations for presses and punching machines in all industries.

### Easy upgrade

Windsor Match Plate & Tool Ltd. (WMP) in Ontario, Canada, operates more than 43 presses of varied types and applications. Mike Kavanaugh, WMP automation engineer,

had the task of bringing the presses into CSA compliance. Searching for a solution that could be implemented quickly and economically together with his team, he tested the Simotion Safety Unit. "My colleagues and I were impressed by the ease of integration and performance of the Simotion Safety Unit," he says. He has upgraded 17 presses to date, and the fast, problem-free installation led the company to standardize on the Safety Unit for all its stamping applications.

### Maximum safety

In manual operation, two-hand anti-tie-down operation is provided, even for multiple operator stations. E-Stops, safety gate interlocks, light curtains, and safety plugs can be directly connected to the Safety Unit and are available in both manual and automatic mode.

The Simotion Safety Unit controls the press clutch and brake combination — and monitors the function of the service brake by measuring the braking time with an integrated brake monitor. Additional safety valves can be reliably monitored. The evaluation of the cam signals (with breakage monitoring for shafts and belts) and reliable speed monitoring complement the base functions of the Safety Unit. In contrast to the conventional implementation



Switching cabinet before (left)  
... and after the retrofit (right)

of safety functions, the Simotion Safety Unit can detect faults at switches, transducers, or sensors even before an incorrect stroke. This is an important prerequisite for the required single-fault tolerance.

### Stand-alone or integrated solution

The Simotion Safety Unit contains all the control functions required for the manual operation of a press. A serial communication interface is also available in addition to the I/O interface, allowing the Safety Unit to be easily connected to a PLC-controlled press automation system. This significantly simplifies application programming for the press control, as all safety functions are implemented by the Safety Unit.

Press control functions are executed with safety considerations in both the hardware and software. The fully operational function blocks are also provided redundantly in the Safety Unit, which contains two mutually monitoring processor systems. The wiring of the safety-oriented inputs/outputs in the associated machine is specified with a user-friendly configuration tool. Default values make the input of the few required parameters fast and easy, and plausibility checks prevent configuration errors. The quickly completed configuration is transferred to the Safety Unit via a PC interface. After loading the data into the Simotion Safety Unit, the settings of both CPU kernels are re-exported, analyzed, and compared with the set points made during the configuration. This detects transmission errors and prevents the operation of the press with inconsistent parameter settings.

### Safety, productivity and economy

Beutler Nova, a Swiss company of the renowned Müller-Weingarten, is equipping its current press generation with the Simotion Safety Unit even though the press is not actually destined for the Canadian market. The price-performance ratio is unbeatable, as Hans Schärli, the managing director, states: "The Simotion Safety Unit allows us to incorporate Siemens quality into even our lowest-priced machines. This pays for itself — not least by improving our image."

Unified Engineering, a systems integrator located in Hamilton, Ontario, has installed a large number of Simotion Safety Units on mechanical presses. George Webster, the senior engineer and project manager, claims that the Simotion Safety Unit "normally pays for itself immediately, thanks to the simplified engineering, installation, commissioning, and acceptance." Due to the operational reliability and high availability of the machine, the high-quality, low-cost Siemens product is a sound decision for the long term.

The Simotion Safety Unit shows that productivity does not need to be achieved at the cost of safety. Maximum safety can be effectively combined with rapid engineering, easy operation, and optimized productivity in both throughput and availability. For many press applications, the Simotion Safety Unit is the controller of choice.



Control panel before (left)... and after the retrofit (right)

The name **Jim Van Kessel** is synonymous with safety certifications for engineers in Canada. He operates a reputed engineering company for industrial automation in Ontario, **JVK Industrial Automation Inc.**, and is also a safety specialist at the Canadian Standards Association (CSA). His competence, market awareness and active presence give his word influence with the important committees. Thus, it is not by chance that his signature embellishes the coveted conformity declaration of the CSA Z142-02 for the Simotion Safety Unit.

#### Mike F. Kavanaugh, Windsor Match Plate & Tool Ltd.:

"I performed a number of tests including power loss, loss and sticking-on of cam signals, mode change, emergency stop and motion loss and was pleased with the results. Overall, my colleagues and I were impressed with the simplicity and performance of the unit and would strongly consider its use for upcoming projects."

#### George Webster, Unified Engineering:

"We have implemented an integration of Simotion Safety Unit into the Siemens press automation solution using Simatic S7-200 PLC and TP170B HMI. This pre-engineered package includes software application and touch screen graphics pre-developed minimizing the engineering requirements resulting in a reduction of the overall project cost and required site time for press retrofit."

Unified Engineering is a Siemens partner in press safety retrofit initiative in Canada that brings over 30 years of press experience in metalforming industry. ([www.unifiedengineering.com](http://www.unifiedengineering.com))

The Simotion Safety Unit permits upgrading to the current state-of-the-art for safety engineering surprisingly simply and economically. The shown retrofit application was implemented by **ECM Controls**. ECM is a well-known Canadian automation service provider that has been using Siemens components successfully and consistently for many years. ([www.ecmcontrols.com](http://www.ecmcontrols.com))

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