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# ABB drives help achieve precise control

ABB and Tatham Ltd, a specialist textile machinery company, have in response to industry demand developed the technology to provide higher production speeds with improved product weight distribution for crosslapper control.

A crosslapper accepts a light weight fibre web from a carding machine and uses it to build up a heavier web in layers (known as a batt). The crosslapper overlaps the layers by means of a complex arrangement of conveyors and reversing mobile carriages that turn the material through 90 degrees. Typical end-products include automotive textiles, bedding, industry felts and filtration media.

Tatham's latest TSX control system utilises ABB high performance machinery drives and servomotors. Several panel combinations are available depending on the existing crosslapper configuration. The system is linked to the master process control using Profibus, an ABB AC500 PLC provides positioning data to the drives which convert it into control signals to maintain the speed of the servomotors.

"We chose ABB drives because of their versatility, power and competitive pricing", says Jim Kelly, Senior electrical engineer at Tatham, "together with ABB we developed a control software based on the ABB drives' programmable function blocks which mean we had a system that provided precise positioning that is repeatable resulting in total control of the batt profile. The heaviness of the batt is a function of the speed it is laid down at and using the ABB PLC, drives and servomotors allows us to vary this precisely, giving a much more accurate and controllable build up of the layers. We can adjust the speed of the carriage at the edges of the batt to avoid distortions and maintain the correct thickness across the entire width."

All parameters can be adjusted from the latest touchscreen operator interface. The batt thickness can be adjusted across its width to suit the product requirements with coefficient of variation (CV) values of around +/-1 percent. It is also possible to shape the batt to any required profile. Essentially the accuracy of the ABB high performance machinery drives mean the TSX system can provide precise control of web delivery to achieve the required batt profile.

As well as significant fibre savings the TSX is very energy efficient. Before a recent installation the crosslapper used 60 A peak but following the installation of the ABB high performance machinery drives, this has been cut to 15 A.

By monitoring the final product with a suitable measuring system Tatham can offer a 'closed loop' control system to automatically adjust the batt profile to the pre-set requirements. It can also be extended to link with Tatham's own TS weight control system if required.

Tatham has become a worldwide specialist in upgrading existing crosslapper drive systems. Having completed numerous installations worldwide the TSX has become a benchmark for leading edge design and operational performance. Recent installations include a geotextile manufacturer in Malaysia, Papermakers felt in China and an automotive textile producer in USA. The technology can be applied to all makes of crosslappers.

As a centre of excellence for system design and implementation, Tatham's team of highly trained engineers offer a wide range of expertise to deliver the right solution. Their experience is backed by the

very latest design and production facilities, enabling them to match engineered solutions to customers' requirements.

**ABB (ABBN: SIX Swiss Ex)** is a pioneering technology leader in power grids, electrification products, industrial automation and robotics and motion, serving customers in utilities, industry and transport & infrastructure globally. Continuing a history of innovation spanning more than 130 years, ABB today is writing the future of industrial digitalization with two clear value propositions: bringing electricity from any power plant to any plug and automating industries from natural resources to finished products. As title partner in ABB Formula E, the fully electric international FIA motorsport class, ABB is pushing the boundaries of e-mobility to contribute to a sustainable future. ABB operates in more than 100 countries with about 147,000 employees. [www.abb.com](http://www.abb.com)



**Caption:** ABB and Tatham have developed control software based on ABB high performance machinery drives' programmable function blocks which provide precise positioning.

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