

TOX-ElectricDrive in ID card production

2,000 cards per hour – individual and unique

Tiepner develops machines for the production of cards in ID-1 format. The complex multilayer structure of the cards makes it possible to customize them and insert specific characteristics. A central work step is lamination, where highest process reliability and quality are very important. For the heating and cooling presses, Tiepner uses TOX-ElectricDrive drives.

Everyone knows them, everyone has lots of them: credit cards, ID cards, customer cards, membership cards. Even driver's licenses and identity cards have long been produced in ID-1 format. A multitude of cards have been bulging in people's wallets since the middle of the eighties. But it is impossible to imagine everyday life without ID cards. They are produced on systems of the device and plant manufacturer Tiepner GmbH: The company from Dietfurt in Germany develops and constructs systems for different users, who produce and individually design these cards – with regard to the design as well as the structure, which can be very complex. This is because the ID cards consist of several foil layers, which can contain different features, such as embossing, chips, magnetic strips, safety features, holograms or RFID and memory modules. Tiepner builds these systems customized according to specific requirements, but the basic principle is always the same: collating the foil, laminating, punching and finally checking the completed cards. The core element of such a ZLSP system is the laminating unit, in which Tiepner installs servo presses from TOX PRESSOTECHNIK GmbH & Co. KG.

First of all, up to eight different foils can be collated automatically from the sheet or reel, and stacked on top of each other precisely positioned. The precise alignment of one above the other through printing registration is ensured by an image processing system. Each foil layer contains specific modules and features – depending on which card is produced. The foil booklet is then handed over to the lamination unit, which joins this foil stack irreversibly: A rotary indexing table forwards this collated foil booklet to the heating press – consisting of two heated punches, one at the top and one at the bottom, which can be heated to up to 200 degrees Celsius. The plastic foils are softened in this heating press and joined together. Then the cooling press is used, to remove the heat again from the firmly glued foil package and to stabilize the

plastic. The lamination process occurs at cycle times of 18 seconds. The ZLSP system then forwards the laminated package to the punch. At the end of the process, the punched cards are checked for size accuracy, surface, RFID test and other possible features, before they are stacked in a magazine.

Electricity instead of compressed air

“We traditionally used the TOX-Powerpackages for the lamination process, as they are reliable and robust”, says Christian Höltge, who is Managing Director of Tiepner GmbH, alongside Thomas Weigl. “But we have now replaced the Powerpackages operated with compressed air with the TOX-ElectricDrive in a new machine. It is the first system with electromechanical press drives, as it has many advantages with regard to its application”, says Mr. Höltge. “These press drives can be set precisely and work more accurately. Above all, they are quieter, which is particularly appreciated by employees. Furthermore, the data can be read and analyzed. For example, we can create force-displacement processes and evaluate performance data – this is used for quality control and traceability.” System operation has also improved with the TOX-ElectricDrive modules, says Mr. Höltge. Not least, the ZLSP system overall is getting significantly cheaper and economical, as expensive compressed air is no longer needed.

Collating, laminating, punching and checking – on a new level

A total of three electromechanical servo press drives is installed in the laminator: two TOX-ElectricDrives of type EX-K with planetary threaded spindle in the heating presses as well as one TOX-ElectricDrive of type EPMK with sensors for force and position measuring including associated press control in the cooling press. These drives are designed for highly dynamic work processes. The power is transmitted from the servo motor via the planetary drive and the planetary threaded spindle to the working piston and consequently the tool. TOX PRESSOTECHNIK supplies the electromechanical power modules as units that are fully pre-assembled and ready for connection.

“We have had good business relations with TOX PRESSOTECHNIK for more than 20 years”, the Tiepner CEO Christian Höltge states. “Cooperation is always straightforward and smooth, and we have a designated contact, who will provide support immediately as required.” With the current system, Tiepner has realized the fourth, technically most complex ZLSP configuration level to date for ID-1 card production. The machine is approx. eight meters long, five meters wide, three meters high, and designed for one-person operation in three-shift operation. It produces 2,000 cards per hour – each one precisely 85.60 millimeters long, 53.98 millimeters wide and with rounded off corners. Individual and unique.

5,400 characters incl. spaces

((information box))

The user

Tiepner GmbH in Dietfurt on the Altmühl river produces tools, devices and special machines for the welding of plastics with a high vertical integration. Among the customers of the small medium-sized company are plastics processors, who supply the automotive, aviation and packaging industry, as well as medical and household technology amongst others. Examples for products which are produced with the machines from Tiepner include amongst others rear luggage covers, convertible covers, sun shades, blood bags, protective covers, aircraft seats as well as folders and covers for the office. Also among the customers are companies and authorities producing bank and ID cards.

Meta title: TOX ElectricDrive for ID card production: firmly joined with certainty

Meta description: Tiepner develops machines for the production of cards in ID-1 format. Servo presses from TOX PRESSOTECHNIK provide the drive of the heating and cooling presses on the laminator.

Keywords: TOX PRESSOTECHNIK; servo presses; TOX-ElectricDrive; electromechanical press drive;

Captions:



Image 1: Tiepner designed the approx. eight meters long, five meters wide and three meters high ZLSP system for one-person operation in three-shift operation.

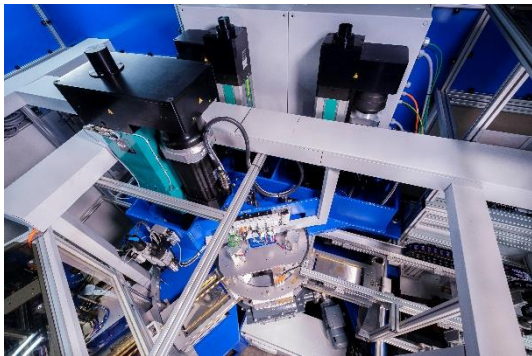


Image 2: A total of three electromechanical servo press drives is installed in the laminator: two in the heating presses and one in the cooling press.



Image 3: With the current system, Tiepner has realized the fourth, technically most complex ZLSP configuration level to date for ID-1 card production.



Image 4: The new ZLSP system from Tiepner GmbH produces approx. 2,000 cards per hour – each one precisely 85.60 millimeters long, 53.98 millimeters wide and with rounded off corners.

Images: TOX PRESSOTECHNIK GmbH & Co. KG

About the company:

TOX® PRESSOTECHNIK is a supplier of presses, systems as well as components for sheet metal joining and assembly technology. Since its foundation in 1978, the family business has become a global player with more than 1400 employees worldwide, 550 of which are based at the headquarters in Weingarten near Ravensburg, Germany. The success story started with one pneumohydraulic drive – the TOX®-Powerpackage. The “Components” division now includes pneumohydraulic and electromechanical drives as well as controls, sensors and software for process monitoring and quality assurance. In addition to a large range of presses, the system range comprises manual, machine and robot tongs. Another mainstay are modern sheet metal joining procedures, also incorporating the TOX®-Clinching Technology, which makes the company today’s market leader.

Drives, processes and systems from TOX® PRESSOTECHNIK can be found at automotive manufacturers and their suppliers as well as at industrial businesses for household appliances, electronic components, furniture and much more. Special versions of the TOX®-Drives are also approved for the food industry.

TOX® PRESSOTECHNIK is represented worldwide: 18 subsidiaries, amongst others in the USA and South America, Europe and South Africa, India, China and the entire Pacific Region. 20 representatives in many other markets support and advise local customers.

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