

TOX-ElectricPowerDrive replaces ElectricDrive drives

The system that can do more

Networked, efficient, accurate – the new TOX-ElectricPowerDrive drives from TOX PRESSOTECHNIK are ready for smart production. This is made possible by a decentralized intelligence, which communicates with the higher control. The TOX-ElectricDrive Core system with the new servo presses replaces the proven TOX-ElectricDrive series.

“The TOX-ElectricPowerDrive EXe-L is as big as a person and creates a force of up to 1,000 kilonewton”, Marco Nimz states as he introduces the most powerful servo drive made in Weingarten. He is Product Manager of the TOX-ElectricDrive series at TOX PRESSOTECHNIK GmbH & Co. and emphasizes: “We are a pioneer in this field.” Usually, hydraulic drive cylinders are used in this capacity range – they are reasonably priced and generate high top forces. “However, operation of the hydraulic drives is not that clean, flexible and accurate. And they are not suitable for digitized production”, says Mr. Nimz. For this reason, a rethinking process is taking place, promoted and demanded by digitization in equal measure. “Storage and evaluation of process data, securing of quality data and access to these years later – this is relevant today”, the Product Manager stresses.

The new TOX-PowerModule Core with integrated fieldbus interface to the robot or higher PLC forms the central intelligence of the drive control. It also supplies the electromechanical drive with energy and replaces the previous Line-X-Controller in the new product line. As servo inverter, it converts the voltage from the socket to a voltage with variable amplitude and frequency. This way, the TOX-ElectricPowerDrive can be continually adjusted.

The intelligent system is parameterized with the newly implemented TOX-SoftWare. It replaces the previous four single modules of server, Worx, HMI and HMI config and combines parameterization, operation, process monitoring, diagnosis and evaluation as well as quality data management. The software is run on the PC of the user or on the new TOX-HMI-Panel with customized interface. “The design of our human-machine-interface is user friendly and visually stands out from that of other manufacturers”, Mr. Nimz states, points to a screenshot of the new dashboard and explains: “The window technology is responsible for process monitoring.” For example, in a pressing/joining process, a joint is evaluated as faulty when the measured force-path curve does not run through one of the specified windows. The position of

the window decides whether faults are detected and how they are classified. The user can now freely define five windows per process and combine them with each other. The multi-channel function enables integration of two channels – for example another force sensor, which is positioned in the customer tool – and the imaging of up to ten tracks in one diagram. This can be physical parameters such as force and position, as well as current, time, speed or dissipation. “With our mathematical functions, users know they can keep their quality promise”, says Mr. Nimz. The new TOX-HMI Panel is available as 10.1 inch manual version and as built-in or support arm unit in 10.1, 13.3 and 21.5 inch. Connection to the system is established by means of Ethernet (TCP).

Decentralized intelligence

The servo drive TOX-ElectricPowerDrive is connected to the PowerModule Core via motor, resolver and data lines. The interface of the drive is the TOX-Edge-Unit. The small unit has two digital inputs and outputs as well as two analog inputs and one encoder input. It is placed on the drive cylinders of the TOX-ElectricPowerDrive series. It is hardly noticeable here, but houses the actual innovation of the new servo-electrical drives: The EdgeUnit works like a decentralized intelligence. “Not in the sense of an artificial intelligence. However, it collects data where they are recorded, and then sends them as a bundle to the TOX®-PowerModule Core”, says Mr. Nimz. Additional cabling is thus not required, and susceptibility to failure is decreased. The same applies to the integrated force transducer. It is a part of the TOX-EdgeUnit and positioned directly next to the power sensors integrated into the TOX-ElectricPowerDrive, whose signals it must convert. Previously, users needed a separate module for this in the control cabinet – including complex cabling and respective susceptibility to electromagnetic interferences.

Apart from an additional measuring amplifier for an external force sensor, TOX PRESSOTECHNIK has integrated storage into the EdgeUnit. It houses amongst others the drive type, maintenance and stroke counter. The nominal force, serial number, calibration factor and date for the next lubrication are automatically reported to the PowerModule Core this way. “This simplifies integration and enables the drive cylinder for plug-and play”, says Mr. Nimz.

Flexibility of application

Press fitting, punching, clinching, stamping, joining, checking, molding and much more – the TOX-ElectricDrive Core system can be used wherever hydraulic alternatives are in service.

“However, it is significantly more accurate, efficient, safe and flexible”, the Product Manager states. Users can convert the modern system to new processes with just a few clicks.

Furthermore, it automatically collects and documents the quality data – so that even years after

production, the force with which a component was pressed can be shown for example. Additional process monitoring would have to be added to a hydraulic drive for this purpose. In addition to a powerful TOX-ElectricPowerDrive, the TOX-ElectricDrive Core also includes further versions for different fields of application, starting from 0.02 kilonewton of press force up to 1000 kilonewton of press force. “Users get a complete package with our new system, which is definitely future-proof”, says Marco Nimz. Future-proof also means that there is still potential for additional features. “The aim is to make our systems increasingly smart and simple in their application. One step was to be able to integrate our servo-electrical drives into a digital environment without any problems. We have already prepared for future functions such as predictive maintenance with the multi-channel function, the performance of the TOX-SoftWare and the flexible fieldbus.”

x,xxx characters incl. spaces

Meta title: TOX PRESSOTECHNIK introduces new ElectricDrive Core system

Meta description: A new software and decentralized intelligence make the new electromechanical TOX-ElectricPowerDrive drives fit for the future.

Keywords: TOX-ElectricPowerDrive; TOX PRESSOTECHNIK; electro-mechanical drive; servo drive; servo press; EdgeUnit; TOX-SoftWare; TOX-PowerModule Core; TOX-ElectricDrive Core; quality data; window technology; punching; pressing in; clinching; predictive maintenance

Captions:

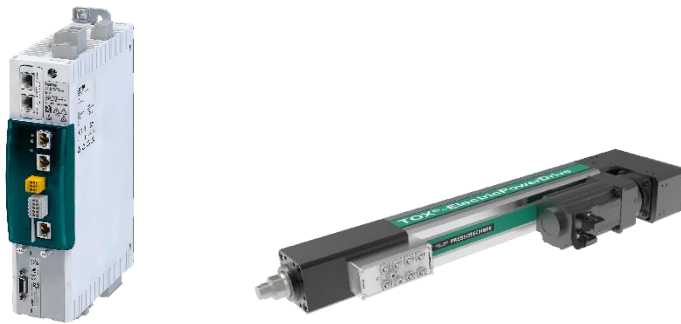


Image 1: TOX-PowerModule Core and TOX ElectricPowerDrive with the TOX-EdgeUnit, which makes the servo-electrical drive intelligent.



Image 2: TOX PRESSOTECHNIK supplies its TOX-HMI-Panel as manual version and as built-in or support arm. The user can freely configure the dashboard and view precisely those data required – diagrams, detailed views, evaluations or quality data.

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.

For queries:

TOX® PRESSOTECHNIK GmbH & Co. KG

presse@tox-de.com

Tel.: +49 751 5007- 0

www.tox-pressotechnik.com

In case of publication, please send a specimen copy to our agency:

a1kommunikation Schweizer GmbH

Christian Beckenbach-Sülzle

Oberdorfstraße 31 A

70794 Filderstadt, Germany

Tel.: +49 711 9454161 - 14

Christian.Beckenbach-Suelzle@a1kommunikation.de

www.a1kommunikation.de