

PRESS INFORMATION

Material flow rethought

Manuela Kessler | 24.06.2025 | Lohr am Main / Germany | PI 031/25

Innovative drive and control concept offers new transport options with the TS 1 transfer system program



The TS 1 transfer system with compact 48 volt stepper motors allows for small system layouts. (Image source: Bosch Rexroth AG)

With the new, electrified modules for the TS 1 transfer system, Bosch Rexroth offers greater flexibility in the design of material flow lines and additional features to increase productivity in assembly processes. The stepper motor-driven belt sections and curves as well as all-electric lift traverse units fit seamlessly into the portfolio of the TS 1 transfer system.

The TS 1 is specially designed for small, lightweight products and assemblies up to 3 kg, where high positioning and repeatability are important. Compact 48V stepper motors drive the new belt sections as well as the 90° and 180° curves. The infinitely variable conveyor speed of up to 24 m/min allows shorter cycle times and increases productivity.

Compared to conventional asynchronous gear motors, stepper motors require significantly less space. This allows even more compact TS 1 layouts to be realized. In the new all-electric lift transverse units, stepper motors replace the pneumatic actuators that have been common up to now. This simplifies design by eliminating valves and hoses, opens up new control options and improves the efficiency of the system, since, among other things, the risk of leakage is eliminated.

The modules are controlled via decentralized motor drivers known as interface modules. These interface modules communicate with the higher-level system controls via an IO-Link master. With IO-Link, you are free to choose a fieldbus, so it can be integrated into all common controllers. The movement profiles of the modules are stored as individual parameter sets. In multi-variant assembly processes, the controller calls up the respective movement profile, which means that modules adapt to the processes without the need for any mechanical work.

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Smart new features

The stepper motors allow each belt section to start and stop smoothly. This is particularly important when transporting sensitive or liquid-filled workpieces. In the production of round and prismatic battery cells, for example, the parameterized ramps move sensitive "jelly rolls" without jolts.

Thanks to the stepper motors, the new belt sections can also stop workpiece pallets in a defined manner without stop gates, e.g. in manual workstations. This reduces system costs and increases flexibility.

By integrating several segmented belt sections, planners can very easily integrate cycle-time-independent sections into the assembly flow. The infinitely variable speed of the individual segments simplifies the integration and synchronization of additional stations for maximum efficiency.

Suitable for use in EPA areas

Almost all components and parts of the Rexroth transfer systems are available in a conductive version. As a result, they are suitable for use in electrostatically hazardous areas (EPA) as a rule. The transfer system meets the requirements for use in ISO 14644-1 class 6 cleanrooms and in medical technology.

Simple planning – universally applicable

The modular TS 1 transfer system covers all common system layouts such as line, U-shape, cart and secondary sections. The intuitive MTpro planning software helps planners to configure assembly systems and guides them quickly and easily through the whole process. Bosch Rexroth offers the planning software as a locally installable full version and as an installation-free web version, MTpro online Designer.

Basic Information Bosch Rexroth

As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile and Industrial Applications as well as Factory Automation. With its intelligent components, customized system solutions, engineering and services, Bosch Rexroth is creating the necessary environment for fully connected applications. Bosch Rexroth offers its customers hydraulics, electric drive and control technology, gear technology and linear motion and assembly technology, including software and interfaces to the Internet of Things. With locations in over 80 countries, around 32,600 associates generated sales revenue of 6.5 billion euros in 2024.

Basic Information Bosch

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The Bosch Group is a leading global supplier of technology and services. It employs roughly 418,000 associates worldwide (as of December 31, 2024). The company generated sales of 90.3 billion euros in 2024. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 490 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 87,000 associates in research and development.

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