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Motion Technology: quantum leap in online Linear axes: Double the performance for heavy payloads

Manuela Kessler | 03.06.2025 | Lohr am Main / Germany | PI 029/25

Compact heavy-duty axis with two carriages optimizes the space requirements and cycle times of dynamic applications in the handling sector

- Linear axis for dynamic handling of two masses weighing up to 385 kg each
- Can be individually configured as a single axis or a linear robot
- Suited for applications with high drive torques and short cycle times



Move large payloads dynamically and precisely: The high-performance CKR-280 compact module with belt drive shortens cycle times thanks to two independently driven carriages. (Image source: Bosch Rexroth AG)

Bosch Rexroth is expanding its CKR series of compact modules with an innovative dual belt axis for dynamic handling with a total load capacity of up to 770 kg. The new CKR-280 heavy-duty axis combines the functions of two linear axes into one linear system. The two independently driven carriages in a single frame enable dynamic applications with high drive torques and short cycle times. The compact dual handling system saves valuable installation space and increases productivity, while also saving time and costs for engineering, assembly and commissioning. The new solution can be ordered as a single axis or combined with other linear axes into a multi-axis system, with the option to also include a drive package.

Whether in battery production, intralogistics or machine tool automation: Many industries are increasingly seeking compact handling solutions that can move large payloads with high dynamics. With the new dual belt version of the CKR compact module series in size 280, Bosch Rexroth offers a space-optimized heavy-duty axis that can handle two payloads up to 385 kg each and drive torques up to 250 Nm.

The two carriages of the dual belt axis can be moved independently of each other within the compact module's sturdy aluminum frame. Thanks to the two integrated drive chains, a variety of

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tasks can now be performed with only one linear axis instead of two. This saves time, costs and installation space.

To enable fast and easy engineering, the compact modules can be configured online in lengths up to 5.50 m. Bosch Rexroth can also deliver longer travel ranges on request. High accelerations of up to 5g and a maximum speed of 5 m/s provide the optimal conditions for short cycle times with high precision and a repeatability of +/- 0.05 mm. Depending on the customer's requirements, a wide variety of travel profiles can be implemented independently.

After its market launch, the CKR-280 heavy-duty axis will also be integrated into the e-tool chain as a new size for single-axis and multi-axis systems.

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

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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