

PRESS INFORMATION

The machine tool industry is in a period of transition: Innovative Linear Motion Technology supports precise applications

Manuela Kessler | 20.03.2025 | Lohr am Main / Germany |

Volker Desch, Head of Sales of the Linear Motion Technology Business Unit, Bosch Rexroth AG

The situation in the machine tool construction industry remains tense. Many manufacturers find themselves under considerable pressure, in some cases even existential pressure. The challenges they face are complex. In addition to the weak economy and the uncertainties regarding exports, the foreseeable shift away from the internal combustion engine will require structural changes in the manufacturing landscape.

Manufacturers are taking different paths to shape this change. One opportunity here lies in the consolidation or even expansion of their market position in high-precision metalworking, despite the adverse circumstances. This requires flexible and innovative suppliers for technologies that are established in machine tools, such as Linear Motion Technology. Three factors are crucial in order to stand out from the competition: innovative solutions, advanced process automation capabilities, and sustainability. We support our customers with new solutions within a broad portfolio and work closely together with them on development projects.

An important new development is our patented temperature control function Thermo Compensating Rail Systems TCRS, which is concisely integrated in the guide rail. The temperature compensation it affords can increase the part accuracy of the machine by up to 75 percent, enhance process stability, and prevent rejects from the very first part. In addition to being able to obtain this new function as an optional precision package for new machines, the TCRS can also be retrofitted to existing machines. For maximum precision, we can integrate guiding, temperature control, and measuring functions into one linear guide.

Machine tool manufacturers will be able to set themselves apart from the competition with complete solutions for process automation in and on the machine, from automatic workpiece or tool assembly through to linear robots for external system linking. Bosch Rexroth offers a broad portfolio of linear axes and multi-axis solutions for the growing market requirements in this area. These enable a high degree of precision and dynamics in the smallest installation space. As a development partner, we work closely with machine tool manufacturers in the development of special solutions.

With efficient solutions, the Linear Motion Technology can also help to conserve resources and reduce energy consumption. Right from the product design stage, we ensure that the required motion tasks consume as little energy as possible and with minimal lubricant consumption. These aspects are automatically taken into account when designing and sizing using our e-tools. The Rexroth Linear Motion Technology Selector, for example, requires just a few clicks and parameter inputs to suggest efficient solutions. We will also continue to expand our range of intuitive e-tools for our customers to ensure an easy and quick process in product selection.

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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 33,800 associates generated sales revenue of 7.6 billion euros in 2023.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 417,900 associates worldwide (as of December 31, 2024). According to preliminary figures, the company generated sales of 90.5 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 470 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 86,900 associates in research and development, of which nearly 48,000 are software engineers.

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