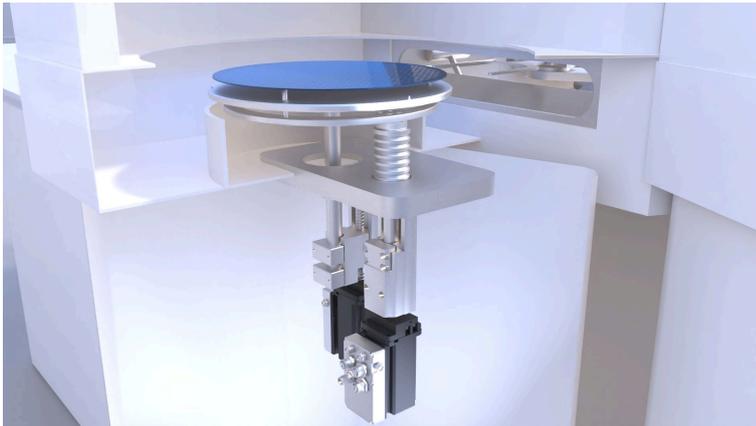


PRESS INFORMATION

From automation to turnkey production systems

Manuela Kessler | 18.11.2025 | Lohr am Main / Germany | PI 051/25

Bosch Rexroth and Bosch Manufacturing Solutions present their solution portfolio for electronics and semiconductor production at productronica 2025



Pin-lift wafer handling system: example application for the gentle material handling solutions shown at the productronica 2025 (Image source: Bosch Rexroth AG)

Semiconductors and electronic components are key elements of almost all technical devices today. By 2030, the need for microchips will double compared to 2023. Manufacturers are faced with the challenge of producing new products faster, more cost-effectively and with a very high level of quality and standard conformity. At productronica 2025, Bosch Rexroth and Bosch Manufacturing Solutions are jointly presenting their extensive range of solutions for the electronics and semiconductor production – from automation solutions from Bosch Rexroth to turnkey production systems from Bosch Manufacturing Systems.

“The dynamics in the semiconductor industry are continuing to increase: If you want to be successful today and, in the future, you have to develop further and industrialize your solutions even faster,” summarizes Thomas Kober, head of the semicon industry segment at Bosch Rexroth. “Our comprehensive portfolio of solutions provides manufacturers with a wide range of products and services: from single solutions to a combination of several coordinated components or mechatronic sub-assemblies, that are designed precisely for customer-specific requirements. This enables them to increase the time to market and reduces the effort required to integrate them into the machine concept.”

With the automation system ctrlX AUTOMATION from Bosch Rexroth, manufacturers benefit from maximum openness. The toolkit provides all components for comprehensive automation solutions - e.g. controls, I/Os, IPCs, HMIs, drives and safety solutions, as well as extensive motion, PLC and IoT functionalities. The Linux-based operating system ctrlX OS runs on the control platform ctrlX CORE with its own ecosystem. Users benefit from the app technology, which allows functions to be added to the control at any time. ctrlX World also allows partners to contribute their strengths and solutions in the form of additional software. This creates a diverse range of solutions. Automation solutions from the ctrlX AUTOMATION portfolio are also integrated into the mechatronic subsystems from Bosch Rexroth and are predestined for the "copy-exact" approach.

Automation solutions for wafer production

In wafer production, the Motion App enables high wafer quality through micrometer accuracy, smooth and jerk-free, perfectly synchronized (e.g. when cutting wafers) or coordinated (e.g. when cleaning wafers) movements. They are characterized by very high dynamics and repeat accuracy as well as controlled accelerations and decelerations. Linear technology components, ready-to-install linear axes or high-rigidity PSK precision modules with compact dimensions

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complete the automation portfolio for wafer production, from ingot production and processing to wafer slicing, polishing and cleaning of wafers.

Application specific subsystems for the frontend

For the frontend, Bosch Rexroth offers wafer lifts for transfer and process functions, as well as for cleaning and polishing processes, among other things. The mechatronic subsystems are offered in numerous variants and delivered fully tested. Ready-to-install linear and compact modules for precise positioning tasks are available in any length and as a multi-axis system. The extensive and cleanroom-certified aluminum profile construction kit enables the rapid implementation of machine frames, ergonomic workstations, shelves and safety fences.

Broad range of solutions for the backend

For the backend, Bosch Rexroth offers high-precision, dynamic and low-vibration motion control solutions, particularly for applications such as wafer dicing, die-bonding, packaging, and testing. The portfolio also includes systems for designing ergonomic workstations and autonomous mobile robots. EMC electromechanical cylinders and compact and linear modules enable high-precision and dynamic movements. The compact modules are also available as a multi-axis solution - including motor, cable, controller and software.

Maximum flexibility for electronics production

The solutions for electronics production range from ready-to-install axes with integrated linear motors for SMT applications (surface mount technology) to motion systems for intralogistics processes. With its high dynamics and precise positioning, the high-speed linear motion system ctrlX FLOWHS is suitable for micro assembly, for example. The planar system ctrlX FLOW6D operates in six degrees of freedom and opens up more freedom of movement with the highest precision. The free-floating transport platforms, known as movers, enable high speed and accuracy - without friction and contamination.

Intralogistics and handling for complete process consistency

Between numerous machines and systems in the overall process, in particular in the frontend and backend, and between the levels of the factories, various industrial and mobile robots ensure the required process consistency and high productivity in line with standards, e.g. wafer handling systems for loading and unloading the process chambers with wafers or sorting, aligning, transporting and storing of wafers in special cassettes. Bosch Rexroth offers high-precision, dynamic and low-vibration motion control system solutions that fulfill this integrative function in the production process in combination with the linear technology based on them and integration in AGVs and AMRs.

Turnkey production systems

Bosch Manufacturing Solutions (BMG) adds turnkey production systems for the assembly of electronic modules such as control units, sensors and power electronics to the range. With over 20 years of experience in the industrialization of complex electronic products, BMG combines in-depth process expertise in technologies such as dispensing, laser processing, handling and optical inspection with digital engineering and intelligent software solutions. This results in modular, scalable system concepts that offer maximum process stability, quality and investment security - developed for OEMs, Tier 1 and EMS manufacturers who rely on flexible and future-proof series production solutions.

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.

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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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