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# Modular automation solutions for efficient logistics

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Future-proof hardware, intelligent software and modern e-tools speed up engineering and commissioning

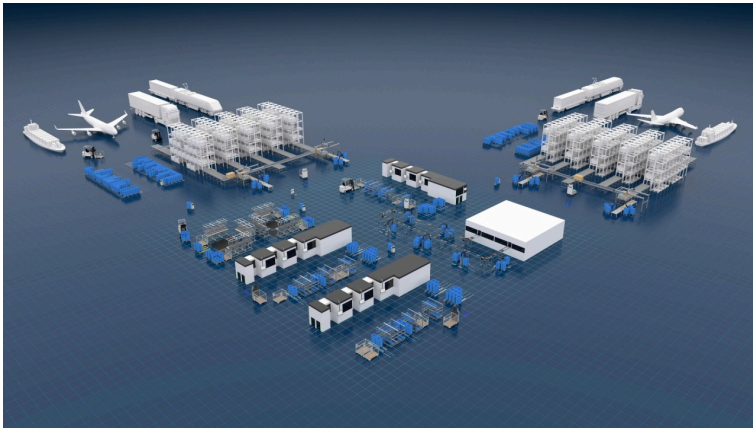


Image 1: Bosch Rexroth supports users across the value stream with future-proof components, subsystems and system solutions for automating and optimizing their logistics and intralogistics. (Image source: Bosch Rexroth AG)

**Smart automation solutions for the entire inbound and outbound logistics and intralogistics process are the key to increasing efficiency while reducing complexity for customized implementation. Bosch Rexroth offers a wide range of modular automation solutions with hardware and software as well as open interfaces and engineering environments with no/low coding for quick project planning.**

### **EcoShape: The quick way to a stable shop floor solution**

With the further developed EcoShape tubular framing system, users can now plan and build shop floor solutions such as shelving and material trolleys even more efficiently. The new system offers a tenfold increase in dynamic load capacity. Additional connecting elements with internal clamping improve the frictional connection and provide more useful space, for example for supermarket shelves or material trolleys. The free MTpro planning software speeds up engineering, for example with quickly adaptable models. EcoShape is compatible with many other Rexroth components from the aluminum profile toolkit.

### **Linear motion technology: Quick commissioning**

In new, highly automated small parts warehouses, linear robots pick goods around the clock. Cost-effective linear modules or complete multi-axis systems from Bosch Rexroth help to speed up the construction of dynamic pick-and-place systems. Low-maintenance electromechanical cylinders ensure the availability and controllability of the lifting systems of autonomous mobile robots (AMRs) and automated guided vehicles (AGVs). Small modules (SMS), small electrified linear axes, transport masses of up to 88 kg in an energy-efficient manner. For all solutions, Bosch Rexroth offers smart e-tools for design, configuration, ordering and commissioning.

### **ACTIVE Shuttle: Ready for mixed operation with other mobile robots**

The ACTIVE Shuttle autonomous mobile robot increases flexibility in intralogistics for multi-variant production. It communicates with the master control system in a future-proof manner via

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the standardized VDA 5050 interface. This interface, which is defined across manufacturers, is the result of a collaboration between the German Association of the Automotive Industry (VDA) and the VDMA's Materials Handling and Intralogistics group. It simplifies mixed operation with mobile robotic systems from other manufacturers. With the help of the associated fleet manager, the ACTIVE Shuttle Management System, users can also control and track a large number of transport jobs and their robots.

**Flexible robotics: Software recognizes new products without having to be taught** Order picking is one of the core processes with the greatest shortage of workers. Smart Item Picking, the intelligent software toolkit for common industrial robots, recognizes a large number of objects to be gripped without models and without teaching. The software provides a full range of modules – from image processing and object recognition to path planning in a secure IPC environment. The hardware-independent solution combine high pick rates with significantly reduces error rates.

### **Comprehensive automation portfolio: The success factors modularity and openness**

Modularity is the key to automating mobile robots quickly and easily. With the modular and efficient automation kit for warehouse and intralogistics applications, manufacturers of automated guided vehicles (AGVs) and autonomous mobile robots (AMRs) can implement their know-how quickly and easily. As a result, they reduce the time to market for customer-specific solutions.

As an open complete solution, ctrlX AUTOMATION provides all the elements for integrated automatic control, regulation, connectivity, monitoring and optimization of intralogistics systems. The modular overall system provides hardware and software as well as services. In addition, ctrlX AUTOMATION reduces the engineering work for intralogistics solutions by 30 to 50 % and allows efficient automation, for example in combination with the ROKIT robotics kit. Its components – ROKIT Locator, ROKIT Navigator and ROKIT Motor – handle localization, navigation and movement execution of mobile robots and can be controlled and linked via the intuitive aXessor graphical user interface.

### **Localization: A one fits all module for simple localization**

The ROKIT Locator is an intelligent localization software and records the position of manually operated vehicles such as forklift trucks, automated guided vehicles and mobile robots of all kinds in real time in dynamic environments. No reflectors or markers are needed. The high-performance algorithm in the real-time localization system (RTLS) uses the information from a laser sensor on the vehicle and automatically records and maps the natural surroundings. During operation, the ROKIT Locator recognizes changes in the environment, automatically updates the map of the surroundings and then makes it available to the entire fleet. Thanks to the flexible integration options, straightforward commissioning and intuitive use of the software components, manufacturers can reduce their development and application costs as well as their service requirements at the end customer.

### **Live presentation at LogiMAT: Automation without limits**

Bosch Rexroth will be exhibiting at LogiMAT in Stuttgart (Hall 6, Stand D41). On 20 March, the drive and control specialist will present its scalable solutions for warehouses and intralogistics using the example of the ROKIT Locator localization software. The event entitled “Automation without limits” will take place in Forum North, Hall 7, from 12:00 to 12:20.

## **Basic Information Bosch Rexroth**

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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 more than 32,000 associates generated sales revenue of around 7.0 billion euros in 2022.

### Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 428,000 associates worldwide (as of December 31, 2023). According to preliminary figures, the company generated sales of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." 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. The basis for the company's future growth is its innovative strength. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which roughly 48,000 are software engineers.

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