

PRESS INFORMATION

Bosch Rexroth at automatica 2023: Automation and robotics are key technologies for the modern factory

Manuela Kessler | 26/06/2023 | Lohr am Main / Germany | PI 039/23

- ctrlX World partners make it easier to use industrial robots
- Automation packages for linear axes speed up commissioning
- Start of industrialized battery recycling

Ever smaller batch sizes and customized products require a high degree of flexibility in production and assembly. Bosch Rexroth is making the digital transformation easier with the open automation toolkit ctrlX AUTOMATION including numerous solutions from the ctrlX World. Modular hardware and software solutions for robotics, automation solutions for general tasks such as linear movements and specific applications such as battery recycling allow companies to adapt to new and changing conditions in production more quickly.

The automation toolkit ctrlX AUTOMATION provides all hardware and software components for highly flexible automation solutions. ctrlX AUTOMATION cuts component and engineering costs by 30 to 50 percent with the help of the real-time capable operating system Linux, fully open standards, app programming technologies, web-based engineering and a comprehensive IoT connection.

ctrlX World with new robotics partners

Through co-creation, more and more partner companies from the ctrlX World are contributing their own strengths and solutions to the automation toolkit ctrlX AUTOMATION. voraus robotik GmbH for example developed a motion solution which makes it possible to control industrial robots with ctrlX AUTOMATION. Programming can be carried out in a unique no-code style or with an advanced programming environment for customer-specific code. With the FANUC RMI Connector, FANUC Deutschland GmbH also supports the seamless integration of robotics into the ctrlX CORE control environment. The connected FANUC robots can be controlled directly and easily via ctrlX AUTOMATION's ctrlX Data Layer.

More processes can be automated

Bosch Rexroth also offers solutions to automate processes which in the past could only be automated with great difficulty. With the help of artificial intelligence, Smart Item Picking recognizes a wide range of objects model-free and can take over picking tasks for example.

The Smart Flex Effector compensation module gives industrial robots a sense of touch similar to that of a human hand. The module, which was awarded the HERMES AWARD 2023 international technology prize combines a sensor system with kinematics operating independently in six degrees of freedom, increases the precision of industrial robots and thus offers completely new possibilities in automation. The compensation element is easy to retrofit and can thus also be integrated into existing automation systems.

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AMR as a plug-and-go solution

The ACTIVE Shuttle, an autonomous mobile robot (AMR) from Bosch Rexroth, can be implemented quickly and without adapting the existing factory infrastructure. It communicates with the master controller via the standardized VDA 5050 interface. The interface makes it easier to operate mixed fleets with tractors, forklift trucks or AMRs and avoids interoperability problems during day-to-day operations. As a plug-and-go solution, the ACTIVE Shuttle automates cyclical transport tasks as well as the needs-based supply of materials. The comprehensive safety concept meets Performance Level d requirements in accordance with EN ISO 13849-1.

Open system solutions for automated guided vehicles

With the software and hardware components from the robotics kit ROKIT and the automation toolkit ctrlX AUTOMATION, Bosch Rexroth provides flexible and modular solutions for autonomous driving in a wide range of vehicle architectures. Manufacturers of automated guided vehicles and autonomous mobile robots as well as system integrators can easily implement their know-how and develop new solutions quickly.

As an open system solution, the modules fit seamlessly into higher-level control systems. The localization software ROKIT Locator produces maps of the surroundings automatically and quickly and determines the vehicle position in real time. No structural measures are needed for this. In combination with the automation toolkit ctrlX AUTOMATION, users can combine on the control platform ctrlX CORE all robotics tasks which were previously spread across PCs, PLCs and safety control systems. This reduces the number of components as well as the space required.

Automation packages for linear axes

Bosch Rexroth meets the market requirements for straightforward engineering and quick commissioning with the new automation packages for its linear axes and electromechanical cylinders. Servo motors, drive controllers, mains filters and wiring complement the long-lasting mechanical systems. The pre-installed software comes with a commissioning wizard with automatic parameterization of the drive controller as well as a module for the convenient graphical programming of movements. Pre-defined Smart Function Kits for handling as well as pressing and dispensing tasks speed up commissioning further.

Reduce machine development times with Nexeed Automation

Co-exhibitor Bosch Connected Industry will present the automation platform Nexeed Automation, a software solution that has been used at Bosch for years and is now also available externally. Machines can be quickly configured and commissioned via the control-independent development environment. Simple device connection, modular engineering through reusable PLC code and the automatically generated HMI ensure short development times. A 3D model of the machine can be created using the CAD data. The machine can be tested and virtually commissioned.

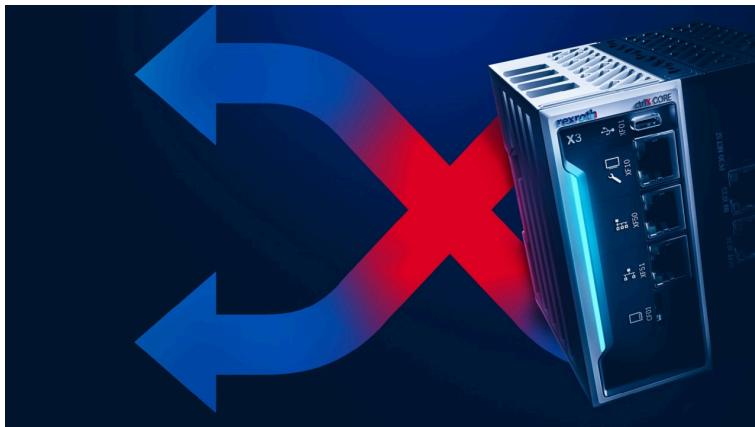
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Machine development times can thus be reduced by up to 50 percent. Thanks to the assistance systems Virtual Assist and Cycle Time Assist, machine operators can quickly correct errors and monitor and optimize the machine's performance. Both are available as apps in the ctrlX Store from Bosch Rexroth.

Battery recycling on an industrial scale

At automatica, Bosch Rexroth will also present the first industrial automation solution for the deep discharging of high-power batteries in order to allow recycling. Thanks to the solution, a process that used to take 24 hours now takes less than 15 minutes. The TS 5 transfer system transports battery cells of different sizes and types from various manufacturers between the diagnostic, discharging and dismantling stations. After contacting, a modular solution from the automation toolkit ctrlX AUTOMATION discharges the battery cells in the discharging station. The discharging equipment automates the initial inspection, the patented deep discharging process with chemical inactivation and the final check. By recycling the batteries, up to 95 percent of the chemical elements can be fed back into the battery production process.

Bosch Rexroth at automatica 2023: Hall A6, booth 502



The automation toolkit ctrlX AUTOMATION provides all hardware and software components for highly flexible automation solutions. Through co-creation, partner companies contribute their own strengths and solutions to the ctrlX World.
(Image source: Bosch Rexroth AG)



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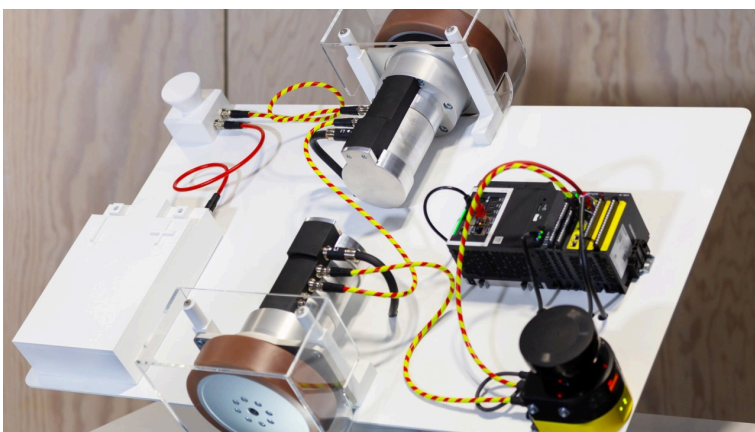
The Smart Item Picking systems are flexibly scalable and allow cost-effective automation of manual picking tasks. (Image source: Bosch Rexroth AG)



Sensor-assisted compensation unit for articulated and linear robots: The Smart Flex Effector increases precision and productivity, avoids errors and allows greater automation. (Image source: Bosch Rexroth AG)



The ACTIVE Shuttle autonomous mobile robot transports small load carriers autonomously, safely and with great flexibility. (Image source: Bosch Rexroth AG)



The robotics kit ROKIT and the automation toolkit ctrlX AUTOMATION from Bosch Rexroth simplify and accelerate the development and commissioning of automated guided vehicle systems. (Image source: Bosch Rexroth AG)

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With a complete package comprising tailored mechanics, electrics and software, automated movements can now be achieved easily and quickly. (Image source: Bosch Rexroth AG)



Nexeed Automation: Simple device connection, modular engineering through reusable PLC code and the automatically generated HMI ensure short development times. (Image source: Bosch)



Nexeed Automation: Machines can be quickly configured and commissioned via the control-independent development environment. (Image source: Bosch)

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With the first industrial automation solution for the deep discharging of high-power batteries, a process that used to take 24 hours now takes less than 15 minutes. (Image source: Bosch)

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 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 421,000 associates worldwide (as of December 31, 2022). The company generated sales of 88.2 billion euros in 2022. 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. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 136 locations across the globe, Bosch employs some 85,500 associates in research and development, of which nearly 44,000 are software engineers.

Press Contact

Please get in touch with our Press Contact

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Manuela Kessler

Spokesperson
technology topics
+49 9352 184145

Manuela.Kessler@boschrexroth.de