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Bosch Blaichach sets course for the future with ctrlX CORE

Manuela Kessler | 27.09.2024 | Lohr am Main / Germany | PI 028/24

- Control system supports automated production of active driving safety products
- All assembly cells of the system and of the Flexible Transport System FTS equipped with ctrlX CORE
- Greater connectivity, efficiency and future-proofing in manufacturing



Bosch relies on the control system ctrlX CORE at its Blaichach plant. (Image source: Bosch Rexroth AG)

In order to align production with the rapid advances in the automotive industry, Bosch relies on the control system ctrlX CORE from Bosch Rexroth at its location in Blaichach. This solution supports the automated production of active driving safety products. All assembly cells of the system as well as of the transport system FTS are equipped with it. Due to the open system architecture, ctrlX CORE enables seamless communication between stations, machines and in the factory network, which allows more room for maneuver and greater efficiency.

In Immenstadt and Blaichach, Bosch manufactures, among other things, high-tech systems for active driving safety, brake boosters, which are used predominantly in electric cars, and camera systems.

This location has a long-standing tradition going back more than 60 years. Today, a variety of technical and commercial areas, manufacturing, initial and further training, as well as various central and service areas are hosted there. The location is the lead plant for ABS/ESP production at eleven locations worldwide.

Controls needed for close cycle timing coordination

Efficient and consistent production processes are crucial today in order to remain competitive in the rapidly changing automotive industry. Communication between machines, plants and systems is required to ensure seamless coordination and automated control of processes. For

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the automated production of products in the automotive, chassis systems and personal safety in vehicles areas, Bosch Blaichach needs industrial control systems that can be used both for process control as well as for controlling the Flexible Transport System (FTS) in closely timed coordination between the stations.

Niels Wefers, Head of the Special Engineering department at Bosch Blaichach, explains: “In production, individual process stations are linked together to form one assembly line. Step by step, they produce, among other things, modules for brake controls for ABS and ESP safety systems in vehicles. The controls used for this purpose required adaptation because we needed better performance and a better ability to communicate.”

The answer: open system architecture

The long-standing cooperation already in place with Bosch Rexroth in the hardware area has been extended to include software options of the control system ctrlX CORE from the automation system ctrlX AUTOMATION. The control replaces an older generation of industrial PCs and uses modern technologies such as EtherCAT master, PLC licenses and OPC UA extensions.

“We were impressed by the open system architecture of ctrlX AUTOMATION, which is reflected in the ctrlX Data Layer and in open interfaces. This opens numerous communication opportunities for connectivity. In addition, the solution measures up to our planned concept for data storage and data interfaces, for example regarding MES. Everything comes from a single source now, from sensors to the cloud,” says Niels Wefers.

Advantages of ctrlX AUTOMATION come to fruition

With the use of ctrlX CORE, the plant in Blaichach takes advantage of the benefits of the operating system ctrlX OS and the ecosystem. While the previous industrial PCs were based on Windows 7, ctrlX CORE relies on Linux, meaning openness, extensibility and “secure by design”. The specially developed operating system ctrlX OS running on the control aims to achieve complete hardware independence.

“We’re impressed by the broad scope for action offered by ctrlX CORE with its associated app technology. This enables us to realize a wide range of applications, from simple process controls to highly automated assembly lines. So, we can always adapt the solution to our needs,” explains Niels Wefers.

The control system also increases the efficiency of the processes and offers greater scalability as well as cycle time advantages – in the ultra-short-term range, for example, by 10 percent. Cycle times of 1 second are possible.

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The significantly higher processing speed leads to greater availability of data and offers the ability to process more data. Overall, the control can be used consistently for the requirements of the future.

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 429,000 associates worldwide (as of December 31, 2023). 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. 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 90,000 associates in research and development, of which nearly 48,000 are software engineers.

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