

PRESS RELEASE

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For Immediate Use

Electrifying mobile working machines with Bosch Rexroth “eLION”

As an end-to-end high-voltage portfolio, eLION includes a full range of electric motor-generators, inverters and accessories as well as tailored gearboxes, hydraulics and software.

- ▶ Developed specially for the challenging environmental conditions of off-highway applications
- ▶ Functional safety implemented in the inverter, in full accordance with ISO 13849
- ▶ Scalable portfolio for driving and work functions with a nominal power range from 20 to 200 kW (peak power up to 400 kW) in various sizes for applications in compact and heavy machines



The modular and scalable Rexroth eLION platform for the electrification of mobile machinery includes motor-generators, inverters, gearboxes, software and accessories as well as matching hydraulics. (Image source: Bosch Rexroth AG)

Bosch Rexroth continues to expand its capabilities in the off-highway segment with its wide range of 700 V components for the electrification of mobile working machines under the name eLION.

Machine manufacturers from all sectors recognize that electric drives are an important building block for a future-viable, sustainable product portfolio. To support and encourage the electrification of off-highway machines, Bosch

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Rexroth offers eLION, its comprehensive range of components for electrifying mobile working machines.

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At the official launch of eLION during a trade conference in Ulm in September 2021, Matthias Kielbassa, Vice President Electrification, presented the portfolio of components. In his presentation, he emphasized the three most important properties of the product platform: scalability, robustness and functional safety.

Scalability thanks to a modular design

The electric 700 V eLION motor-generators from Bosch Rexroth cover a nominal power range from 20 to 200 kW (peak power up to 400 kW) and deliver nominal torques of up to 1050 Nm and maximum torque of up to 2400 Nm. They are available in four sizes with different lengths and winding configurations. Depending on the design, they are available in a fast or standard-speed version. Over 80 configurations are possible, which means maximum design freedom for manufacturers when electrifying existing and new vehicle architectures.

To accompany the range of motors, eLION also offers inverters in various power classes with up to 300 A continuous current and high overload capacity. The inverters support DC bus voltages from 400 to 850 V.

Gearboxes with high power density for hub and central drive configurations (eGFT and eGFZ) are also part of the eLION portfolio and allow compact drive units for a wide range of applications.

BODAS software modules are available for the entire eLION platform, along with matching hydraulic components such as axial piston pumps.

Other electrical components such as DC/DC converters, power distribution units, on-board chargers and high-voltage cables round off the range. Manufacturers can rely on these integrated solutions regardless of the energy source (e.g. hybrid or battery).

Newly developed components with a focus on operating conditions and functional safety

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According to Kielbassa, the eLION developers relied on the company's own experience with electrical industry solutions and its comprehensive knowledge of the mobile working machine sector throughout the development process. In addition, they took advantage of Bosch's wealth of expertise when it comes to electric mobility. Because all components were newly developed, there is no need for compromises despite harsh off-highway operating conditions. The eLION motor-generators and inverters are highly robust: both comply with the IP6K9K ingress protection requirements and can be used at a temperature range between -40 °C and 85 °C. The maximum temperature for the motor-generators is as high as 100 °C. The shock and vibration resistance of the eLION components is up to 50 g for shock and 10 g for vibration.

Functional and electrical safety was a particular focus during product development. Manufacturers and users benefit from inverter safety functions in accordance with ISO 13849.

Production started in 2022

During pilot projects, OEMs such as Kalmar or Sennebogen had already had positive experiences with eLION from Bosch Rexroth. "The aim is to use our technology to create a future with higher efficiency, lower noise emissions and less air pollution. We have the right products at the right time and we're also helping our customers to strengthen their market position with future-viable mobile working machines."

About 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.

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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.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com.

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