

Hannover Messe 2025: Bosch offers intelligent and efficient solutions for industry
Eight trade-fair highlights at a glance

March 19, 2025
PI 11934 RB MK/af

- ▶ AI-based tools and software as a growth area
- ▶ Applications for efficient hydrogen production and use
- ▶ Solutions for the entire value stream of battery production

Stuttgart and Hannover, Germany – At Hannover Messe, Bosch presents solutions for industry – from hydraulics and electrolysis to [software](#). In each case, the focus is always on improving the efficiency and productivity of manufacturing and enabling sustainable production. There is a significant role for hydrogen in making production sustainable – and in Hall 13, Booth C33, Bosch will be showcasing technologies for producing and using this resource. Bosch Rexroth will also be presenting its broad portfolio of industrial technology in Hall 6, Booth D26. In addition, Bosch experts will be sharing their thoughts with industry through [presentations and panel discussions](#).

Bosch technical highlights make industry fit for the future

Hydraulic Hub: With its comprehensive range of digital services, the Hydraulic Hub simplifies and accelerates the servicing and maintenance of industrial hydraulic products, thereby increasing machine availability. Users of this digital service platform can access Bosch Rexroth's hydraulics and service expertise 24/7 via its intuitive interface. The Hydraulic Hub also offers support with documentation and with proactive maintenance of hydraulic systems. AI-based tools provide answers to specific questions, such as what to do in the event of an oil leak, and help identify and rectify faults. Bosch Rexroth is working with Amazon Web Services, among others, to apply AI technologies.

Electrolysis stack: Hydrogen production by way of electrolysis using renewable electricity has a central role to play on the path to a climate-neutral economy. In 2025, Bosch will launch its first electrolysis stack, the heart of every electrolyzer. The Bosch stack comprises more than 100 electrolysis cells that employ electricity to split water into oxygen and hydrogen. It is designed for an output of 1.25 megawatts, which corresponds to a hydrogen production rate of 23 kilograms per hour. On the hydrogen side, the resulting pressure is more than 30 bar. The stack is suitable for use in modular systems from 1 megawatt upward as well as in large gigawatt-class industrial systems.

Water treatment system: The Pure Water System offered by Bosch Manufacturing Solutions (BMG) is a container system for the production of ultrapure water for electrolysis. Impurities in the water can render electrolyzers inoperative in a very short time. BMG's water treatment system uses thermal and electrochemical processes to remove impurities such as salts or metals, thereby producing ultrapure water. The first step uses an energy-efficient and water-saving distillation technology called mechanical vapor compression. This is followed by electrodeionization (EDI), in which an electric field removes the remaining ions from the distillate. The Pure Water System requires no filter media or chemicals at all to treat salty water. The system's product water meets the strict purity requirements of all electrolyzer technologies.

Electrolyzer stack testing system: Bosch Manufacturing Solutions (BMG) offers an innovative system for the safe and efficient end-of-line testing of PEM electrolysis stacks up to a size of 1 megawatt. Automated contacting of the electrolyzers at the anode, cathode, and power supply increases precision and reduces the time required for testing. The software's test procedures can be flexibly adapted to the specific requirements of different tests. Moreover, its customizable data evaluations enable a detailed analysis of the test results, which supports quality assurance in stack production. BMG also offers a modular, customizable electrolysis system for efficient hydrogen production, as well as a broad portfolio of assembly and testing systems for the development, manufacture, and quality assurance of fuel cells and fuel-cell power modules (FCPM).

CryoPump station: Bosch Rexroth has worked together with FirstElement Fuel, the U.S. market leader for the commercial operation of liquid hydrogen filling stations, to develop an important technology milestone for refueling infrastructure. CryoPump stations cut operating costs by up to 70 percent, bringing them down to an economical level, while shortening refueling processes for heavy trucks to around ten minutes. Compared to conventional crankshaft-based pumps, the technology increases efficiency to over 95 percent and

extends maintenance intervals to over 4,000 hours. With a footprint of less than 11 m² and a noise level of less than 65 dB(A), the stations are ideal for use in existing filling stations, even in residential areas.

Battery production solutions: Battery production is considered a key technology for the energy transition. The only way manufacturers can hope to meet heavy future demand is by rapidly scaling up their battery production capacity. At Hannover Messe, Bosch Rexroth will be demonstrating how to realize complex value streams and extremely dynamic material movements using real material flow solutions along the entire value stream: from the virtual warehouse and cell preparation through module and pack assembly to transport and end-of-line testing.

Compact gas compressor: Efficient and cost-effective hydrogen compression and storage is a key issue in the energy transition. Based on a proven automotive application, Bosch has developed a gas compressor that can compress over 11 standard cubic meters of hydrogen per hour to as much as 350 bar. This corresponds to more than one kilogram of hydrogen. The compressor's compact dimensions and extremely low weight of less than ten kilograms make installation and maintenance considerably easier. In addition to hydrogen, the compressor is also suitable for other gases such as nitrogen, helium, and carbon dioxide, which greatly expands its range of application.

HeyBosch: Bosch and Microsoft have expanded their partnership to introduce HeyBosch, an advanced AI platform based on Microsoft Azure. HeyBosch improves data management for industrial companies by providing insights into data and knowledge, making complex engineering data easy to understand, and using generative AI to enable user training. The platform integrates conversational AI, VR/AR functions, and business intelligence tools to offer a consistent and user-friendly experience.

Press photos and infographics in the Bosch Media Service at www.bosch-press.com.

Contact person for press inquiries:

Manuela Kaiser

Phone: +49 711 811 44203

E-mail: Manuela.Kaiser@de.bosch.com

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.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG. It is entrusted with the task of safeguarding the company's long-term existence and in particular its financial independence – in line with the mission handed down in the will of the company's founder, Robert Bosch.

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