



## **Motor Bella 2021: Bosch technologies support the continued proliferation of electrification**

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### **New Bosch 230 electric motor and inverter with silicon carbide technology offers system efficiency up to 97%**

- ▶ Bosch highlights support for the electrification of transportation – from cars and trucks to bicycles.
- ▶ Bosch is preparing for large-scale production of fuel cells in cars and trucks – the company will showcase fuel cell solutions for the NA market.
- ▶ Electrification beyond the powertrain – Bosch will display braking systems for electric vehicles and IoT solutions for battery management.
- ▶ Automated and connected technologies will be shown through technologies like Virtual Visor and new multi-purpose camera video technology for vehicles.

**Farmington Hills, Mich.** – The future of mobility is electrification across many levels of transportation, from passenger vehicles to heavy-duty trucks to bikes. At Motor Bella 2021, the all-new, outdoor auto-centric event featuring countless vehicles, immersive ride-and-drive activations and next-generation mobility, Bosch will offer a glimpse into the future of mobility through its innovative solutions for sustainable transportation and enhanced safety.

This year, Bosch will spend \$800 million (700 million euro) on developing electrical mobility solutions, including fuel cells, an increase of nearly 40 percent over 2020. In North America, Bosch has continued its commitment to its mobility customers by investing more than \$250 million in capital expenditures in 2021.

“When it comes to electromobility, the Bosch portfolio covers a vast array of possibilities to support our customers in bringing new electrified solutions to the market,” said Paul Thomas, executive vice president, Mobility Solutions for the Americas at Bosch. “From powertrains to steering systems to brakes, Bosch’s portfolio includes all the building blocks for the electrification of vehicles and allows for a seamless integration into our customers various electrical and vehicle architectures.”

### **Powertrain electrification for a variety of approaches**

Bosch's broad portfolio supports a variety of powertrain electrification needs. At Motor Bella, Bosch will introduce its **new efficient 230 electric motor** for commercial and medium-duty vehicles. The new 230 electric motor has a rated voltage of 800 volts and is designed for long service life. During its development, Bosch engineers paid particular attention to optimizing the continuous power density to enable a compact design and easy integration into electric rigid axles. To achieve this, hairpin winding technology is used in the stator as well as combined oil-water cooling. The rotor and stator are internally oil-cooled and the active parts are installed in a water cooling jacket. The new electric motor is available in power ratings between 150 and 230 kilowatts continuous output.

The Bosch portfolio also includes an **advanced inverter with silicon carbide (SiC)** technology. The improved electrical conductivity of this new semiconductor material reduces heat losses, enabling higher switching frequencies and improved power density. With this Bosch achieves an efficiency of up to 99 percent in its new generation of inverters. Silicon carbide chips used in power electronics [can improve the efficiency of the battery powertrain by as much as 6 percent.](#)

When combined, the inverter and electric motor are fine-tuned to each other to enable their use together in one system. This results in a system efficiency of up to 97 percent. Bosch is one of the first suppliers to make this possible for commercial vehicle applications, resulting in increased range or saved battery capacity.

The Bosch **e-axis** combines the power electronics, electric motor, and transmission in a single unit. With a pre-integrated system solution for vehicle platforms, Bosch helps automakers bring electric vehicles to market faster than before. To complement its system-level expertise, Bosch also offers DC/DC converters as well as electric motors and inverters.

### **Fuel cell technology to carry heavy loads farther**

Bosch has been investing heavily to prepare for large-scale production of fuel cells in cars and trucks. At Motor Bella, Bosch will feature its comprehensive, scalable and flexible portfolio: the **fuel cell stack** as well as **balance of plant components for customized fuel cell modules** up to a **fully integrated fuel cell power module**. Bosch fuel cell solutions support commercial vehicles and heavy-duty pickups with long-range demand and heavy payloads.

### **Braking technology for current and future EVs**

As powertrain technology continues to evolve, so must braking technology. Electrified vehicles of the future will require new solutions to support the increased vehicle battery weight. Bosch is helping customers manage new vehicle weight realities with **braking technology to support electrification** today and into the future. Motor Bella attendees will get an up-close view of the latest innovations in electrified vehicle braking.

### **Battery in the Cloud – Better performance and longer life for EV batteries**

Bosch extends the life of electric vehicle batteries through its **Battery in the Cloud (BitC)**, an innovative cloud-services system that measurably improves the performance and lifetime of batteries. BitC continuously monitors, measures, analyzes and optimizes vehicle battery condition, resulting in up to 20 percent less battery wear and tear.

### **10 years of success electrifying the bicycle**

At Motor Bella, Bosch will provide the opportunity to try out its range of current eBike solutions during public days Sept. 25-26. Bosch eBike Systems has been in business for more than 10 years now and works with more than 35 bike manufacturers in North America, including Trek, Cannondale and more.

[Recently, Bosch eBike Systems announced](#) a fully connected **eBike smart system** where the eBike becomes part of the Internet of Things. This means eBikes with the smart system from Bosch are constantly evolving after purchase and the personal eBike experience is continuously enriched with new digital functions and services.

### **Virtual Visor system enhances visibility and safety**

The **Virtual Visor** from Bosch blocks the sun, not your view. The Virtual Visor, originally introduced at CES 2020 where it won multiple awards, replaces the traditional sun visor with a smart, transparent LCD. The system uses a driver-monitoring camera to track the driver and selectively block only the visor areas in which the sun would strike the driver's eyes. **Virtual Visor increases visibility by up to 90 percent.** At Motor Bella, Bosch will showcase how the solution has continued to develop under the leadership of [associates in North America who originally developed the product](#) as part of Bosch's internal innovation platform.

### **MPC3 multi-purpose camera — intelligent technology for automated mobility**

The **third generation of the front video camera** from Bosch enables vehicles to reliably detect objects and people in a variety of scenarios, by combining classic image-processing algorithms with artificial intelligence methods to enhance resilient object detection. Ideal for future applications involving video-based driver assistance systems, the capabilities of the Bosch MPC3 camera will be showcased during Motor Bella. Bosch's business in driver assistance is set to grow 40 percent globally in 2021 – faster than the market.

### **Automated Valet Parking – The driverless parking service**

Many people enjoy driving, but nobody likes to park. **Automated Valet Parking** from Bosch takes the hassle out of searching for a parking space and handles the actual task of parking the vehicle for drivers. The solution is activated by a smart phone and utilizes a smart infrastructure to completely handle the parking procedure. Bosch expects the solution, which was [demonstrated in Detroit in 2020 with Ford and Bedrock](#), to be available in nearly 1,000 parking garages globally by 2025.

### **Detroit Smart Parking Lab – Collaboration for real-world automated and EV charging testing**

In [August](#), Bosch announced it would team up with the State of Michigan, Ford and Bedrock to launch the nation's first-of-its-kind, real-world test site for emerging parking technology – called the **Detroit Smart Parking Lab**. The lab enables mobility and smart infrastructure pioneers and real-estate innovators and startups to test parking-related mobility, logistics and electric vehicle charging technologies. At Motor Bella, Bosch will highlight opportunities for organizations to become involved in the Detroit Smart Parking Lab. Kevin Mull, director of business development, Mobility Solutions for Bosch in North America, will participate in panel about testing and deployment in the state of Michigan on the AutoMobiliD stage at Motor Bella Sept. 22 at 10:30 a.m. EDT.

The Bosch exhibit at Motor Bella 2021 will be open between 9:00 a.m. and 8:00 p.m. EDT, Sept. 21-22, at M1 Concourse in Pontiac, Mich.

### **Contact person for press inquiries:**

Tim Wieland

Phone: +1 248-876-7708

[Tim.Wieland@us.bosch.com](mailto:Tim.Wieland@us.bosch.com)

**About Bosch**

Having established a regional presence in 1906 in North America, the Bosch Group employs 34,700 associates in more than 100 locations, as of December 31, 2020. In 2020, Bosch generated consolidated sales of \$12.3 billion in the U.S., Canada and Mexico. For more information, visit [www.bosch.us](http://www.bosch.us), [www.bosch.ca](http://www.bosch.ca) and [www.bosch.mx](http://www.bosch.mx).

The Bosch Group is a leading global supplier of technology and services. It employs roughly 395,000 associates worldwide (as of December 31, 2020). The company generated sales of \$81.7 billion in 2020. Its operations are divided into four business sectors: Mobility Solutions, 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 440 subsidiary and regional companies in 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 126 locations across the globe, Bosch employs some 73,000 associates in research and development, as well as roughly 30,000 software engineers.

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