Press release

May, 2016
PI 9268 BEG/Fi

Electrifying motorsport
Bosch makes racing karts clean and quiet

- Bosch develops electric powertrain for motorsport kart prototype together with FIA and German Motorsport Association
- 48-volt system makes karting emissions-free, quiet, and agile
- Bosch series production technology powers the electric racing kart
- “Electrification will bring more excitement, driving pleasure, and greater efficiency to motorsport,” says Dr. Markus Heyn, member of the board of management of Robert Bosch GmbH

Abstatt/Berlin – It goes from 0 to 100 kph under five seconds and has a top speed of over 130 kph, and with peak torque available even at low engine speeds, it can squeal the tires with just a tap of the pedal. The only things missing here are the engine roar and the smell of gasoline in the air. This is the motorsport experience that FIA Electric, the New Energy Commission, and the German Motorsport Association (DMSB) are presenting on May 21, 2016 in Berlin. Within the greater context of FIA Formula E they are showcasing the “e-kart”, which is a purely electric racing kart prototype. The FIA and DMSB rely on Bosch for this innovative powertrain system. The supplier of technology and services developed the system together with these motorsport organizing bodies, as well as with Germany’s largest kart manufacturer Mach 1 Kart. Together these organizations will be presenting an initial prototype in Berlin. “With the e-kart, the FIA, DMSB, and Bosch are together laying the foundations for ‘electrifying’ performance kart racing. Just as it has on the roads, electrification will bring more excitement, driving pleasure, and greater efficiency to race tracks,” says Dr. Markus Heyn, member of the board of management of Robert Bosch GmbH. DMSB General Secretary Christian Schacht is also enthusiastic about the electric racing kart: “We’re happy to support the forward-looking and exciting FIA electric kart project. As an advanced technology nation, Germany very much has a special obligation to support electromobility in motorsports. We do that with Formula E, and we also do that by supporting junior kart racing drivers.”

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Powertrain technology from the street to the race track

Karting is considered to be the gateway series into the world of professional motorsport. Currently, most racing karts are powered by internal-combustion engines. When the FIA, DMSB, Mach 1 Kart, and Bosch decided to develop an all-new electric powertrain for professional karting, they logically began with a blank sheet of paper. The idea was to create a purely electric motorsport discipline that made no compromises in power or performance. Bosch motorsport engineers came up with a solution in the form of the new BRS boost recuperation system, whose first generation will go into production at the company starting in 2017. The electrical components of the BRS support the internal-combustion motor in compact vehicles with up to 10 kW of additional power, which reduces fuel consumption and CO_2 emissions by up to 15 percent on the street. It also provides the internal-combustion engine with an additional 150 newton meters of torque during acceleration. “We have modified the system for use in professional karting, and we are using it it to electrically power the e-kart prototype,” says Dr. Klaus Böttcher, vice president of Bosch Motorsport. “We offer a complete system combining Bosch automotive large-scale production technology with specially developed components and powertrain control software from a single source.” Two starter-generators delivering a total output of 20 kW form the basis of the new powertrain, which sends a sporting 300 Nm of torque to the rear axle. Energy is stored in the system using a 48-volt lithium battery. In addition, the starter-generators can recover energy during recuperation and then use it for acceleration. The nerve center of the powertrain is a custom ECU that controls energy flows throughout the kart. A set of sensors and a wiring harness complete the overall system. The new electric powertrain turns the Mach 1 Kart chassis into a clean, fast, and agile performer on the race track. “Even during its initial run, the electric kart was able to hit 100 kph in less than five seconds and achieve a top speed of over 130 kph. Over the coming weeks and months we will continue testing to further explore the capabilities of the new e-kart,” explains Böttcher.

Bosch Motorsport

With more than 100 associates around the world, Bosch Motorsport has been a part of Bosch Engineering, a subsidiary specializing in engineering services, since 2003. Bosch Motorsport engineers equip teams running in the DTM, FIA European Formula 3 Championship, the Porsche Carrera Cup Germany, and numerous rallies and long-distance championships – including the legendary 24 Hours of Le Mans event and of course the ultimate formula racing series – with race-tested technology made by Bosch. Bosch’s involvement in motor racing dates back 115 years: the first racing victories with Bosch technology on board came in the early 1900s, and the motorsport success stories continue to this day.

Press photos:

1-BEG-22278, 1-BEG-22279, 1-BEG-22280, 1-BEG-22281, 1-BEG-22298, 1-BEG-22299

Further information:

Basic information Bosch Motorsport

Boost Recuperation System: the hybrid for everybody

Brochure Boost Recuperation System

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Bosch Engineering GmbH is a wholly owned subsidiary of Robert Bosch GmbH and is headquartered in Abstatt, Germany. As a systems development partner to the automotive industry since 1999, the company with its more than 2,000 associates offers development services for powertrains, safety and convenience systems, and electrical and electronic systems – from the original concept to series production. Specialized in electronics and software, it draws on Bosch's proven large-scale series production technology to develop tailored solutions for a wide variety of applications in passenger cars, commercial vehicles, off-highway and recreational vehicles, and in rail applications, ships, and industry. Bosch Engineering GmbH also coordinates all the Bosch Group's motorsports activities.

Additional information can be accessed at www.bosch-engineering.com

The Bosch Group is a leading global supplier of technology and services. It employs roughly 375,000 associates worldwide (as of December 31, 2015). The company generated sales of 70.6 billion euros in 2015. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing and sales network covers some 150 countries. The basis for the company's future growth is its innovative strength. Bosch employs 55,800 associates in research and development at 118 locations across the globe. The Bosch Group's strategic objective is to deliver innovations for a connected life. 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."

Additional information is available online at www.bosch.com, www.bosch-press.com, twitter.com/BoschPresse

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Bosch entwickelt elektrifizierten Antrieb für E-Kart

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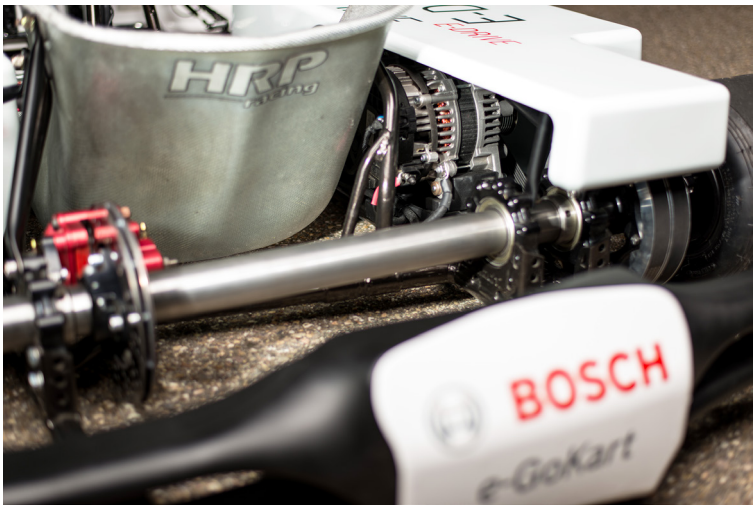

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Antriebstechnologie von der Straße in den Rennsport

Der Antrieb des E-Karts besteht aus zwei Starter-Generatoren mit zusammen 20 kW Leistung, die für sportliche 300 Nm Drehmoment an der Hinterachse sorgen. Als Energiespeicher dient eine 48-Volt-Lithium-Batterie.

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Pressebild 1-BEG-22281

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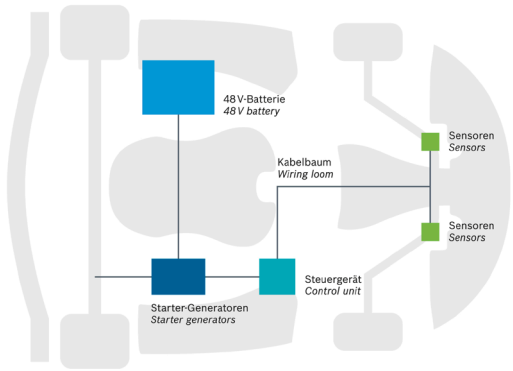
Bosch develops electrified e-kart powertrain



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