



BorgWarner Energizes Future of Mobility with Extensive Hybrid, Electric Vehicle Offerings

- *Company's comprehensive portfolio aligns with the industry's needs for electrification*
- *BorgWarner has been developing and manufacturing hybrid and electric products for more than a decade*
- *Inventive solutions will be demonstrated at the Electric & Hybrid Vehicle Technology Expo in Novi, Mich. in September*

Auburn Hills, Michigan, Sept. 9, 2019 – More than 1.2 million electric vehicles (EVs) are on the road today in the U.S., with adoption expected to continue to increase in the coming years. Sales of EVs grew 80% from 2017 to 2018, and were up 10% in the first quarter of 2019 compared with the same time period in 2018. IHS Markit forecasts that electric vehicle sales will reach 7.6% of the U.S. market share in 2026, with more than 130 models featuring electrified propulsion systems. Additionally, it forecasts that the number of brands offering at least one EV will more than triple by 2023 in comparison to 2018.

With billions of dollars being invested worldwide into the future of electrification, a robust strategy is critical for automotive suppliers. While BorgWarner continues to design and manufacture clean combustion products, it has rapidly accelerated its product growth across hybrid architectures and electrified platforms, with a full portfolio of hybrid and electric propulsion systems and products, making it a key automotive supplier powering the future of electrification. The company's sound strategy and strong portfolio have resulted in the supply of high-volume electrified technologies.

"We've built a solid hybrid and electric vehicle foundation over the past 10 years and have continued to broaden our expertise, expand and strengthen our portfolio and strategically partner with companies with complementary experience," said Frédéric Lissalde, President and CEO, BorgWarner Inc. "We are energizing this sector with our extensive and comprehensive e-propulsion offerings which enables us to be a true partner to our customers by manufacturing and

delivering the right solution, whether it is a full propulsion system or propulsion products, for their individual needs.”

BorgWarner solidified its electrified propulsion system offerings with its recent formation of a joint venture with Romeo Power Technology, a technology-leading battery module and pack supplier. Through this agreement, BorgWarner will be adding battery packs featuring intelligent battery management systems with proprietary algorithms to its growing list of capabilities.

As a global, proven leader in clean, energy-efficient propulsion solutions, BorgWarner’s acquisitions and joint ventures have bolstered its ability to deliver a wide range of systems and products, everything from individual hybrid, 48-volt and high-voltage electric components to full electric propulsion systems. Its suite of 48-volt technologies offers significant efficiency gains, with benefits such as reduced weight, compact designs and simple integration.

Hybrid and Electric Drive Modules

One of BorgWarner’s key offerings is its P2 on-axis module for hybrid electric vehicles. This highly integrated technology enables Original Equipment Manufacturers (OEMs) to convert combustion-powered vehicles into hybrids without having to modify the engine, transmission or vehicle architecture, allowing OEMs to minimize investment and facilitate fast-to-market hybridization. This functional and compact module combines a 48-volt or high-voltage electric traction motor, launch device, dual mass flywheel and engine disconnect clutch. Placed between the engine and transmission, it is compatible with all transmission architectures, and delivers high-performance and improved power density.

Similarly, the company can produce off-axis P2 hybrid modules, which place the electric motor parallel to the main axis, delivering an even more compact package. A highly efficient, durable chain transfers power with best-in-class efficiency and noise, vibration and harshness (NVH). Beyond P2 on- and off-axis hybrid modules, BorgWarner provides options for every hybrid design iteration, including P0, P1, P2, P3, P4 and Power-split.

BorgWarner’s state-of-the-art electric drive module (eDM) features its electric drive motor technology and proven eGearDrive® transmission. Developed with the company’s patented high voltage hairpin (HVH) technology, BorgWarner’s HVH 250 motor delivers superior performance with more than 95 percent efficiency. The eGearDrive® transmission offers a highly efficient gear train with a compact, low-weight design delivering more than 97 percent efficiency. The eDM module is a proven solution for battery-powered electric and P4 hybrid vehicles.

BorgWarner’s integrated drive module (iDM) sports a scalable and modular architecture with a wide range of available electric motor sizes and gear ratios, and specially developed power electronics. With an advanced transmission system and industry-leading drive motor technology,

BorgWarner Inc. BorgWarner Energizes Future of Mobility with Extensive Hybrid, Electric Vehicle Offerings

the modules are easy to integrate at the front or rear axle. The modules deliver exceptional power densities, torque, and NVH characteristics.

Motor/Generators

BorgWarner aims to reduce costs while improving energy recovery and efficiencies with its motor/generators. Its Motor Generator with Integrated Electronics (MGI), a four-quadrant motor drive, is an exemplary example of how its motor/generators fuel higher system efficiency and reduce energy use to meet increasing power demands. Likewise, its MGI can operate at high temperatures (up to 125 degrees Celsius) and speeds (18,000 RPM rotor speed) and has multiple electromagnetic variants to meet a wide range of performance requirements.

The company's HVH series electric motors are available as fully housed motors or as rotor/stator assemblies. These powerful motors deliver durable performance for use on- and off-highway, offer world-class power density, and come in various stack length, cooling and winding configurations.

48-volt, Transmission and Electric Boosting Technologies

Modern vehicles are consuming increased electricity, which calls for a high-performance on-board power supply system. The 48-volt (V) boardnet delivers sufficient power and offers a wide range of options for optimizing propulsion in terms of fuel economy, emissions, and dynamic driving performance. It can be implemented economically while maintaining power output. With the conviction that 48 V systems are a central technology for advanced vehicles, the company has developed one of the broadest 48 V portfolios in the industry.

Designed as powerful devices to improve dynamic performance and fuel efficiency, both BorgWarner's eBooster[®], an electrically driven compressor, and eTurbo[™], an electrically assisted turbocharger, use the vehicle's 48V board net to deliver dramatic results. The eBooster offers a compact design with its integrated power electronics, and without dependence on engine oil or exhaust gas the mounting location may be optimized. The eBooster works with the conventional turbocharger to provide additional air flow, particularly at low engine speeds and transient conditions allowing the engine to produce more torque and nearly eliminate turbo lag. The eTurbo works on the same principle, except the electric motor is integrated into the turbocharger, applying additional torque directly to the shaft when needed. The eTurbo may also be used to harvest energy from the exhaust under certain load conditions. When either electric device is deactivated the system behaves like a classic turbocharger. Both the eBooster and

eTurbo allow for downsizing of engines without a loss of performance, leading to reduced CO₂ emissions.

But that's not all, BorgWarner's 48 V product portfolio also includes a hybrid eRDM (rear drive module) with torque vectoring and an eAWD (all-wheel drive) system. The eRDM combines torque vectoring with fully functional and mechanical AWD for maximum vehicle stability and improved fuel economy, while the eAWD is a rear axle drive concept with optional torque vectoring.

With its eRDM torque vectoring goes electric. The eRDM combines torque vectoring with full-function mechanical all-wheel drive for maximum vehicle stability. Front-wheel-drive vehicles can be transformed to all-wheel drive with the company's latest all-wheel-drive coupling with integrated, electric actuators.

Key features of the eAWD system are optional one- or two-speed function for enhanced all-wheel drive capability and regenerative braking, launch assist (engine downsizing enabler) and creep capable for extended stop/start, an integrated motor which provides full power over a large rpm range, in-house power electronics, improved traction management through expert all-wheel drive insight and 1,500 Nm (1106 lb.-ft.) launch torque.

Power Electronics and Battery Packs

In terms of power electronics, BorgWarner's portfolio encompasses advanced electrification technologies which enhance the drive experience and improve performance such as high-and low-voltage controllers, battery charging technologies and battery management systems with proprietary algorithms for enhanced performance and cycle life, and proprietary thermal engineering for active and passive cooling.

High Voltage Battery and Cabin Heaters

BorgWarner is able to deliver superior thermal management performance to keep hybrid and electric vehicles at optimal temperatures and operating at peak efficiencies. The company's high voltage coolant heater provides superior battery management for EV platforms, with fast response times (e.g. heating up) to keep core components at temperatures that facilitate maximum driving range. Similarly, its high-voltage air heaters are compact and modular in design, easily integrating into existing structures within the vehicle and providing limited waste heat.

Showcasing Expertise

BorgWarner will be displaying its clean propulsion technologies in booth 1445 at the Electric & Hybrid Vehicle Technology Expo, which takes place Sept. 10-12 in Novi, Michigan.

BorgWarner Inc. BorgWarner Energizes Future of Mobility with Extensive Hybrid, Electric Vehicle Offerings

Attendees will get a first-hand look at BorgWarner's industry leading technologies, along with the opportunity to talk with technical experts.

For more information about BorgWarner's electrified products, visit www.borgwarner.com/technologies/electric.

About BorgWarner

BorgWarner Inc. (NYSE: BWA) is a global product leader in clean and efficient technology solutions for combustion, hybrid and electric vehicles. With manufacturing and technical facilities in 67 locations in 19 countries, the company employs approximately 30,000 worldwide. For more information, please visit borgwarner.com.



BorgWarner's P2 module (left), battery packs (middle) and the eAxle iDM (right).

Statements in this press release may contain forward-looking statements as contemplated by the 1995 Private Securities Litigation Reform Act that are based on management's current outlook, expectations, estimates and projections. Words such as "anticipates," "believes," "continues," "could," "designed," "effect," "estimates," "evaluates," "expects," "forecasts," "goal," "initiative," "intends," "outlook," "plans," "potential," "project," "pursue," "seek," "should," "target," "when," "would," variations of such words and similar expressions are intended to identify such forward-looking statements. Forward-looking statements are subject to risks and uncertainties, many of which are difficult to predict and

generally beyond our control, that could cause actual results to differ materially from those expressed, projected or implied in or by the forward-looking statements. These risks and uncertainties, among others, include: our dependence on automotive and truck production, both of which are highly cyclical; our reliance on major OEM customers; commodities availability and pricing; supply disruptions; fluctuations in interest rates and foreign currency exchange rates; availability of credit; our dependence on key management; our dependence on information systems; the uncertainty of the global economic environment; the outcome of existing or any future legal proceedings, including litigation with respect to various claims; and future changes in laws and regulations, including by way of example, tariffs, in the countries in which we operate, as well as other risks noted in reports that we file with the Securities and Exchange Commission, including the Risk Factors identified in our most recently filed Annual Report on Form 10-K/A. We do not undertake any obligation to update or announce publicly any updates to or revision to any of the forward-looking statements.

PR contact:

Kathy Graham

Phone: +1 248-754-0550

Email: mediacontact@borgwarner.com