



## **Driving Electrification: BorgWarner at IAA Commercial Vehicles in Hanover, Germany**

- *Delivering the foundations of electric mobility*
- *Extensive expertise helps OEMs meet regulatory obligations*
- *Broad product portfolio offers manufacturers complete solutions*

Auburn Hills, Michigan, September 4, 2018 – Driving electrification right from the start, BorgWarner provides global vehicle manufacturers with technology solutions for hybrid and electric vehicles. The company's knowledge and high level of expertise as a propulsion system leader support OEMs in hybridizing and electrifying vehicles in order to meet regulatory requirements. At this year's IAA Commercial Vehicles in Hanover, Germany from September 20 to 27, 2018, the company will focus on solutions for hybrid and electric commercial vehicles while also presenting their latest technologies for combustion powered commercial vehicles at booth A03 in hall 16.

“At BorgWarner, we constantly develop our technologies to provide our customers with leading combustion, hybrid and electric propulsion solutions. In doing so, we pave the way for efficient and cleaner mobility for commercial vehicles in the future,” said Scott Gallett, Vice President, Marketing, Public Relations, Communications and Government Affairs. “As the automotive industry is one of continual change, truck and transit fleets face new challenges such as regulations around zero-emissions zones and noise-sensitive areas. Our innovative solutions help manufacturers to meet these challenges.”

## **BorgWarner innovation highlights at IAA**

### **PACE Award winning electric motor technology**

BorgWarner's solutions for the growing hybrid and electric commercial vehicle market include the latest award-winning S-wind wire forming technology for high-voltage electric motors and alternators, enabling high-volume production, high power density as well as space-saving advantages. The compact and power-dense solution is nearly 30 percent shorter and delivers more than 50 percent higher torque density than a concentrated-wound stator.

### **Single component or complete solution**

BorgWarner offers customers single solutions in addition to complete modules whether these be electric motors, transmission technologies or power electronics. The company's electric Drive Module combines High Voltage Hairpin (HVH) electric motors and the advanced eGearDrive® transmission, while the integrated Drive Module (iDM) features highly efficient power electronics. Integrating all technologies needed for electric propulsion in one lightweight and compact package, BorgWarner's iDM represents a complete propulsion solution. While the HVH technology enables high torque and enhances power density, the compact eGearDrive® transmission contributes to extended battery-powered driving range. This is achieved through a low-weight design and a highly efficient helical gear train.

### **Efficient thermal management**

Whether for a truck cabin or a battery pack in a hybrid or electric vehicle, thermal management is key for each application. The Battery and Cabin Heater solutions are two of the company's latest innovations for thermal management. The former, a coolant heater, available as Single and as Dual Plate technology, enables quick reaction times, delivering constant homogenous temperature distribution between the cells and the battery packs and simultaneously functioning as a heat source for cabin and battery heat management systems. The latter, an air heater, facilitates thermal management of the cabin system. This technology features two-zone functionality, enabling precise and individual regulation of air flow for both passenger and driver.

Leveraging its vast experience in engine cooling solutions, BorgWarner has developed the 48-volt eFan. The low noise and lightweight technology provides rapid fan speed responsiveness for precise temperature control, thereby improving fuel efficiency and engine performance for combustion and hybrid vehicles.

### **Improved boost and fuel economy**

BorgWarner's broad product portfolio features multiple technologies for combustion-powered vehicles and mild hybrids, such as the eBooster® electrically driven compressor – an advanced solution delivering “boost on demand” until the turbocharger takes over, therefore improving boost at low engine speeds. Moreover, the eBooster technology works independently of the exhaust gas flow, providing benefits such as improved downsizing and transient boost pressure as well as reduced emissions and fuel consumption. BorgWarner's eTurbo™ technology utilizes its integrated electric machine as a generator or motor respectively, allowing energy recovery from the exhaust gas flow. Additionally, eTurbo™ provides charging assistance and is currently being developed for large and small commercial vehicle engines. BorgWarner will also display its Organic Rankine Cycle (ORC) waste heat recovery system which enhances fuel economy while lowering emissions. The purely thermal approach converts wasted exhaust heat into usable electrical energy by making use of fluids phase change characteristics. Featuring a bidirectional high-inspeed motor controller, the water cooled system offers a compact package, weighing less than 10 kg and capable of delivering up to 13 kW.

For more information, please visit: <https://www.borgwarner.com/newsroom/event/iaa-cv>.

### **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 66 locations in 18 countries, the company employs approximately 29,000 worldwide. For more information, please visit [borgwarner.com](http://borgwarner.com).



 **BorgWarner**

BorgWarner's latest technologies such as EV Transmission, the Electric Drive Motor, the Electric Drive Module and Thermal Management Solutions electrify commercial vehicles, thus supporting manufacturers in complying with emissions regulations and fuel economy goals. (Photo: BorgWarner)

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