



BorgWarner Offers Products for Every Facet of Commercial Vehicle Powertrain and Propulsion Needs

- *Company will display full line of commercial vehicle propulsion products at the North American Commercial Vehicle (NACV) Show in Atlanta, October 28 - 31*
- *BorgWarner has the right technology for commercial vehicles whether the fleet is powered by combustion, hybrid, electric or fuel cell systems*
- *From starters and alternators, to fans, to turbocharger technology to electric motors and future propulsion needs, BorgWarner will showcase a wide variety of commercial vehicle propulsion technology and products*

Auburn Hills, Michigan, October 24, 2019 – BorgWarner delivers a full spectrum of propulsion technology for commercial vehicles, whether it is a combustion engine, hybrid or electric propulsion system, or fuel cell-powered vehicle, helping to create a cleaner, more energy-efficient world. With a commercial vehicle product line which includes starters and alternators, electric motors, boosting technologies, exhaust gas management, power electronics, thermal management and engine timing systems, BorgWarner has been supporting the needs of the commercial vehicle segment for more than 100 years. BorgWarner will showcase its commercial vehicle technologies at the North American Commercial Vehicle (NACV) show in Atlanta beginning on October 28th in Hall B, Booth number 8015.

“BorgWarner is committed to providing solutions for the commercial vehicle marketplace that provide manufacturers and fleet owners with clean, efficient, cost-effective technology to propel their vehicles,” said Frédéric Lissalde, President and Chief Executive Officer, BorgWarner. “The commercial vehicle industry is well positioned to lead the way on clean technologies, including electric and fuel cell vehicles, and BorgWarner is proud to be a part of these activities.”

Low fuel consumption and a long service life are key factors in the commercial vehicle industry, and BorgWarner’s technology helps Original Equipment Manufacturers meet those goals.

Thermal Solutions

Airflow management plays a key role in cooling combustion engines. The Company's polymer cooling fans range from optimized axial flow fans and ring-fans for specific installations, to hybrid designs that cover future cooling demands. BorgWarner's Guide Vane design provides optimized air flow potential through its world-class efficiency and unique diffuser design. This design operates at lower torque than fans in a traditional shroud, resulting in more power to the wheels. Exceptional aerodynamics and durability in the same lightweight package are hallmarks of BorgWarner's fan portfolio. At NACV, the company will showcase its latest fan, the XDB12.

Fan Drives combine the advantages of an electrical fan with a mechanical fan drive, resulting in improved fuel efficiency, performance and system integration, and reduced noise. BorgWarner offers a full range of fan drive options that deliver a compact system layout, and reduced system restriction. With some of the company's fan drives, auxiliary pusher fans can be eliminated. BorgWarner's Viscronic® V3X Fan Drive, On/Off fan drive and DuroSpeed® Fan Drive will all be displayed at NACV.

Starters and Alternators

BorgWarner's starters and alternators are proven products in the commercial vehicle marketplace. With a robust drive system and the ability to withstand the most extreme thermal conditions, the company's starters deliver owners and fleets the durability they require for commercial vehicles. The Company's commercial vehicle starter features include light weight noseless designs for the toughest environmental conditions, and the ability to eliminate failure modes with integrated over crank protection (IOCP) delivering a long-life starter. BorgWarner will highlight the Delco Remy® 38MT™ with Smart IMS at NACV.

BorgWarner's alternator product portfolio delivers optimal power density, durability and high output performance for the commercial vehicle market. The brushless design includes a stationary field winding with limited wear components providing the highest level of durability and product life in the industry. The patented stator winding maximizes slot fill for improved performance and efficiency. At NACV, BorgWarner will showcase the Delco Remy 55SI™ and 40SI™ high output alternators.

Boosted Air Supply and Motor/Generator Technology

BorgWarner is a leading supplier of innovative boosting technologies, with products for every type of commercial vehicle propulsion technology. The company's product portfolio for commercial vehicles features a variety of solutions that may be optimized for each customer, including Wastegate, Variable Turbine Geometry, Dual-Volute and eTurbo technology. At NACV,

for combustion engine vehicles, BorgWarner will feature its Dual-Volute turbocharger. For hybrid electric vehicles, the company will showcase its eTurbo technology and Rankine Cycle (ORC) waste heat recovery system. The company's product display for electric commercial vehicles includes its Turbine Range Extender (TReX™) and power electronics capability for high-switching frequency, supporting the needs of high-speed electric motors. For fuel cell-powered vehicles, BorgWarner will display its Fuel Cell Air Supply.

Cabin Heaters

BorgWarner's High-voltage Coolant Heater belongs to the company's Battery and Cabin Heater family. The advanced cabin and battery heater design uses the latest thick film element (TFE) technology and solves two problems in a single device for designers of the fast-growing global fleet of hybrid electric and pure electric vehicles. It helps keep passengers warm in the absence of engine heat and also conditions traction battery packs, allowing them to work at peak efficiency. The technology was developed to meet demand for high performance systems that quickly generate heat.

BorgWarner's High-voltage Cabin Heater delivers a comfortable interior temperature for electric vehicles. The high-voltage cabin heater warms the air stream coming from the blower, delivering a comfortable and odor-free cabin environment, while saving battery power due to efficient operation. Featuring ceramic PTC components as core elements of the design, the cabin heater self-regulates to ensure high power heating is available in cold temperatures, when it is needed most. As temperatures rise and heating demand decreases, the energy is automatically reduced. It is easily integrated into existing architectures within the vehicle due to its compact, modular design.

Electric Motors

BorgWarner's High Voltage Hairpin (HVH) motors deliver world-class power density, peak efficiencies of more than 95 percent and the reliability and durability commercial vehicle customers expect. The company has supplied key components for commercial vehicle electrification for more than a decade and has delivered many key innovations.

The HVH series of motors are durable, rugged motor/generators suitable for on- and off-highway use, power generation and for other special, high-power demand applications. BorgWarner's HVH250 and HVH410 motors that will be on display at NACV are available in various stack length, cooling and winding configurations. They also are available as fully-housed motors or as rotor/stator assemblies, offering flexibility for the company's customers.

BorgWarner also supplies an integrated 48V Motor/Generator (MGI) for a variety of hybrid architectures and applications. These systems reduce the cost of electrification when compared

with high voltage hybrid solutions or pure electric vehicles. Featuring high-efficiency stators and permanent magnet rotors, liquid cooling, and available with integrated, high-efficiency power electronics, the 48-volt technology provides excellent end user value to increase fuel savings and reduce emissions. The MGI, HVH410, HVH250 and the HVH146 will be on display at NACV.

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 HVH410 electric motor will be one of the displays at the NACV Show in Atlanta beginning on October 28th in Hall B, Booth number 8015.

PR contact:

Kathy Graham

Phone: +1 248-754-0550

Email: mediacontact@borgwarner.com