



BorgWarner Named 2020 CLEPA Innovation Award Winner for Cooled SiC Inverter

- *Award recognizes outstanding technology achievements among automotive suppliers*
- *Inverter enables up to 800V electrical systems and extends electric vehicle range*
- *Viper power switch makes inverter 40% lighter and 30% smaller than previous generations*

Auburn Hills, Michigan, December 8, 2020 – BorgWarner has been awarded an Innovation Award in the Environment category by the CLEPA European Association of Automotive Suppliers for its cooled SiC inverter. The award recognizes outstanding mobility technology achievements among automotive suppliers and was presented during a virtual ceremony on Nov. 25. The company's winning technology contains a patented silicon carbide power switch, called Viper, for next-generation inverters. The Viper power switch supports electrical systems up to 800V and enables multiple benefits, including increased efficiency with voltage flexibility, reduced recharging times, extended range and smaller battery size.

"With the increased drive for innovation in terms of vehicle electrification to meet global CO₂ reduction targets, receiving this significant honor from CLEPA reinforces BorgWarner's expertise and cutting-edge capabilities in this space," said Dr. Stefan Demmerle, President and General Manager, BorgWarner PowerDrive Systems. "Viper is a game-changing SiC-based power switch that delivers up to a 70% improvement in switching losses and 25% greater power density to help commercialize future mobility solutions."

Essential for electric vehicles, inverters transform direct current (DC) from the battery pack into an alternating current (AC) to power the electric propulsion motor. Within each inverter, there is a power module, usually comprised of six semiconductor switches that manage the power flow to the motor. With Viper, all six switches have been condensed in size, located between two small

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heat sinks that absorb and disperse heat. This double-sided cooling structure allows for a more compact design, making next-generation inverters 40% lighter and 30% smaller than previous generations. The new silicon carbide power switch also enhances efficiency and permits much higher power output, in combination with an 800V system.

Viper's unique design allows it to be scaled and adapted to both lower and higher voltage systems, giving OEMs much-needed flexibility in managing the multiple voltage levels required by plug-in hybrid and battery electric vehicles.

About BorgWarner

BorgWarner Inc. (NYSE: BWA) is a global product leader in clean and efficient technology solutions for combustion, hybrid and electric vehicles. Building on its original equipment expertise, BorgWarner also brings market leading product and service solutions to the global aftermarket. With manufacturing and technical facilities in 99 locations in 24 countries, the company employs approximately 48,000 worldwide. For more information, please visit borgwarner.com.



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PR contact:

Anna Penava

Phone: +49 7141-132-753

Email: mediacontact.eu@borgwarner.com