



## **BorgWarner Supplies P2 Hybrid Solutions for ChangAn's New Transmission**

- *BorgWarner awarded orders from ChangAn, one of the top four automakers in China*
- *The new contracts recognize BorgWarner's system integration ability*
- *BorgWarner will supply highly integrated, compact P2 drive module and electro-hydraulic control unit to ChangAn*

Shanghai, China, Nov 6, 2019 – BorgWarner has entered into an agreement with leading Chinese original equipment manufacturer (OEM) ChangAn Automobile to supply its triple-clutch P2 drive module and electro-hydraulic control unit for ChangAn's new-generation hybrid transmission. BorgWarner expects to achieve mass production of its P2 modules on the new model of Changan in 2020.

State VI emission standard will be officially implemented in 2020, but many local governments started executing the new standard in July 2019 to combat the increase in air pollution. This, together with stricter fuel consumption regulations and the dual-credit scheme (which restricts fuel consumption of gasoline cars), has brought challenges for OEMs. As the traditional combustion technologies are unable to meet stricter emission requirements, development of innovative hybrid technologies has become a focus for the auto industry. The highly integrated P2 drive module and electro-hydraulic control unit offer improved fuel economy and emissions, which are working for better system efficiency and performance. Its scalable, modular design covers different torques, is available with an optional E-motor and is compatible with high voltage PHEV, high voltage HEV and 48V systems. The compact, lightweight S-wind motor offers high torque density, especially suitable for P2 hybrids that are expected to become the mainstream of hybrid architectures.

"We are thrilled to extend our partnership with ChangAn," said Dr. Volker Weng, President & General Manager, BorgWarner Transmission Systems. "Being awarded these contracts reinforces BorgWarner's position in the global HEV market. It also validates the system integration ability of our modules. BorgWarner is committed to providing high-quality products and services to

our customers and developing next-generation transmission technologies for more sustainable mobility.”

By placing the electric motor directly between the internal combustion engine and the transmission, BorgWarner’s on-axis P2 drive module delivers cost-effective hybridization by being compatible with existing vehicle platforms. The innovative P2 solution offers the possibility of integrating up to three clutches, including a disconnecting clutch, which allows the system to decouple from the engine for pure electric driving, enabling customers to achieve both their individual fuel-efficiency and performance goals. In addition, BorgWarner can supply the electrohydraulic controls for actuating the wet clutches, giving customers the option to choose individual components or a complete system.

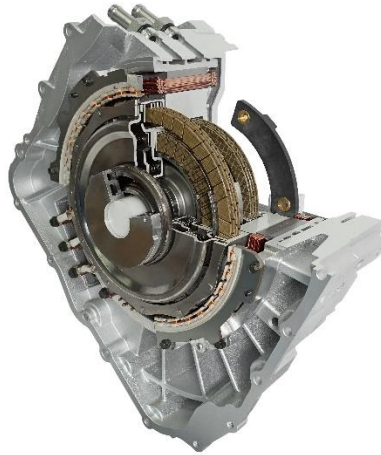
BorgWarner’s P2 drive module is also available in an off-axis configuration. This design places the electric motor parallel to the main axis and connects the system via one of the company’s durable chain technologies, ensuring maximum torque transfer.

The company’s P2 drive modules give OEMs the flexibility to place the electric motor where they have space in existing architectures, either on- or off-axis. By using BorgWarner’s award-winning S-wind wire-forming process to create the motor, the P2 drive module produces high power and torque densities in an extremely compact package. The innovative manufacturing process allows BorgWarner to produce smaller, more powerful high-voltage electric motors on a mass scale and will help drive growth in the hybrid and electric vehicle market. In addition, unlike other off-axis P2 solutions that use a belt to attach the system, BorgWarner’s off-axis drive module delivers top performance from connecting the P2 via one of its best-in-strength and durability, quiet, chain drive technologies. Moreover, the solution offers stop/start, regenerative braking and supplemental electric propulsion, and is available for 48-volt and high-voltage hybrid systems.

In addition to the P2 drive modules, BorgWarner’s extensive product lineup includes solutions for all potential hybrid drive architectures, along with integrated clean and efficient propulsion systems for combustion and electric vehicles. Committed to advancing sustainable mobility, the company continues to work internally and with industry partners to develop next-generation propulsion technologies.

## **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](http://borgwarner.com).



### P2 Hybrid Architecture for ChangAn's New Transmission

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