



## **BorgWarner’s Intelligent Cam Torque Actuation (iCTA) Improves Fuel Economy for GAC Motor**

- *BorgWarner extends cooperation with GAC Motor*
- *iCTA is a variable cam timing technology suitable for both combustion and popular hybrid applications*
- *Proprietary technology enables lower emissions, greater fuel economy and improved engine performance*

*Shanghai, May 20, 2020* – BorgWarner partnered with GAC Motor to introduce its next generation of variable cam timing actuators – intelligent cam torque actuation (iCTA) – to GAC’s combustion and some models with hybrid applications. As emission standards becomes stricter, Chinese auto manufacturers are seeking more efficient and tunable intake and exhaust technologies to meet future emission regulations. A great addition to BorgWarner’s variable cam timing (VCT) technology, iCTA blends the best attributes of cam torque actuation (CTA) and torsional assist (TA) phaser technologies for better efficiency and improved fuel economy, offering automakers the opportunity to meet challenging State VI emission standards. iCTA is a device that varies engine cam timing at a fast actuation rate with low oscillation. It will first be installed on GAC’s new compact SUV, the GS3. GAC began mass-producing engines with this BorgWarner technology in June, 2019.

“We are glad to extend our long-term cooperation with GAC Motor,” said Brady D. Ericson, President and General Manager, BorgWarner Morse Systems. “Our new iCTA technology is suitable for both combustion and hybrid applications which are gaining increasing popularity. iCTA can operate across a variety of engine types, enriching BorgWarner’s industry-leading variable cam timing product portfolio. We developed this latest innovation and conducted a wide range of tests in order to meet our customers’ needs.”

iCTA provides fast cam phasing throughout the engine operating range, reducing emissions and improving fuel efficiency while maintaining optimal vehicle performance. BorgWarner's intelligent cam torque actuator allows the engine to be tuned for optimal opening and closing of the valves to maximize airflow when the engine needs it, and minimize it when it doesn't. By recirculating oil within the actuator, iCTA reduces oil demand and engine parasitic losses over competing solutions for in-line 3 cylinder (I3) engines. As the cam shaft spins, it oscillates due to cam torque and the iCTA captures the cam torque and uses its energy to augment the energy from the engine oil pump. The technology operates with front-mounted variable-force solenoid controls and a center-mounted spool valve that is contained within the bolt, which mounts the phaser to the cam shaft. In addition, it offers an optional passive mid-position lock (MPL) technology that ensures a failsafe return to lock at the mid-position for reliable engine starts under any operating condition.

iCTA enables a fast actuation rate of engine valve phasing across all engine speeds and maintains stable operation at low oil pressure. This technology can be used for any engine configuration from I3, I4 to V6, and more. It performs consistently regardless of speed range, has compact packaging and is a cost-effective solution to best manage airflow for a variety of driving conditions, from cold-starts to highway cruising. In terms of packaging, iCTA integrates all necessary features within the existing centerbolt architecture to allow interchangeability with an existing CTA or TA cam phaser. This product is now manufactured in the BorgWarner Ningbo, China plant.

### **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 29,000 worldwide. For more information, please visit [borgwarner.com](http://borgwarner.com).

BorgWarner Inc. (BorgWarner Intelligent Cam Torque Actuation (iCTA) Improves Fuel Economy for GAC Motor)



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