



BorgWarner R2S[®] Takes Turbocharging to New Levels of Fuel Efficiency

- *German premium manufacturer selects two-stage turbocharging for 2.0 liter engines*
- *Technology is key to fuel efficiency and reduced emissions*
- *Meets growing demand for clean, highly efficient, turbocharging technologies*

Auburn Hills, Michigan, July 9, 2019 – BorgWarner’s reputation as a global leader in combustion technologies is demonstrated by the use of the company’s innovative regulated two-stage (R2S[®]) turbocharging system for BMW Group’s latest 2.0 liter TwinPower turbo 4-cylinder diesel engine, featured in most of the latest and upcoming vehicle models across the range. The extraordinary combination of a low pressure variable turbine geometry (VTG) turbocharger and a high pressure wastegate turbocharger was tailored to meet the automaker’s specific demands – most R2S applications use VTG in the high-pressure stage. The resulting system is optimized to achieve the best possible combination of enhanced performance, reduced emissions and fuel economy. BorgWarner’s technology is helping automakers comply with increasingly stringent local emissions regulations worldwide and, in Europe, supports them in meeting the requirements of the Euro 6d TEMP standard.

“Our leading R2S solution supports automakers in reducing emissions and improving fuel economy,” said Joe Fadool, President and General Manager, BorgWarner Turbo Systems. “We have been supplying BMW Group with our advanced technologies for 20 years and are happy to substantially expand our successful relationship by providing a majority of their vehicles with our R2S system.”

The highly innovative BorgWarner R2S unit combines the VTG turbocharger and a wastegate turbocharger, arranged in series, in a compact package. It facilitates an optimized air supply over the whole engine map, so that the lowest emissions and highly efficient fuel consumption are achieved by always supplying the required boost for optimal combustion. Electric actuators control the inflow angle and speed at the turbine wheel inlet by precisely adjusting the turbocharger’s guide vanes. In this way, the VTG turbocharger constantly adapts

the cross-sections of the turbine to the engine's driving status for optimized power output. The technology also offers improved thermodynamics and a rapid rise in boost pressure to provide excellent transient response and nearly instant acceleration which significantly enhances driving pleasure.

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 68 locations in 19 countries, the company employs approximately 30,000 worldwide. For more information, please visit borgwarner.com.



BorgWarner's R2S turbocharging system enables the realization of individual customer demands.

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