

# Cost-effective suspension technology

**BWI Group** is greatly expanding its production capacity for MagneRide magneto-rheological dampers, to make high-performance active suspensions more accessible

» The world's only full-scale developer and mass producer of magneto-rheological dampers, BWI Group, has delivered more than 10 million MagneRide dampers since it introduced the system in 2002.

A recent development at the global tier-one supplier of advanced suspension and braking systems is that it has significantly expanded its production capacity for fourth-generation magneto-rheological dampers. BWI Group is adding 600,000 units annually, to deliver high-performance dampers at a competitive price.

With this expansion, BWI Group expects to achieve improved economies of scale that will enable car makers to adopt high-performance active suspensions at a more accessible price point.

This fourth-generation design, MagneRide 4.0, adjusts damping force 1,000 times per second for optimal ride quality, blending comfort with dynamic handling. The damper is suitable for customisable driving modes, so drivers can tailor suspension response to suit different road conditions, whether to maximise comfort or sportiness, or select a comfortable medium.

MagneRide 4.0 delivers the benefits of active suspension in a compact, maintenance-friendly design. The hardware is also durable, with tests having shown and proved consistent performance in extreme conditions (-30°C to 105°C).

According to BWI Group, compared to other valve-based technologies, MagneRide provides better body motion control and steering, achieves a broader damping force range, and responds more rapidly. The damping force is not limited by the suspension stroke velocity, and it can provide a high damping force at low stroke speeds.

MagneRide's speed of damping response, combined with a wide range of damping force capability, allows for high levels of vehicle tuning, particularly in terms of high-frequency secondary motion. The magneto-rheological fluid used in the damper delivers any level of damping within the wider dynamic range.



BWI Group describes MagneRide as 'an active suspension in a passive damper package', and the technology has demonstrated its adaptability in various sports cars and luxury vehicles.

Many models from Ferrari, Lamborghini, Cadillac, and the Ford Mustang, have been fitted with MagneRide over the past two decades. Market feedback shows that having a MagneRide suspension system significantly enhances the competitiveness of a car model.

A leading car maker recently signed a MagneRide deal for an annual volume of approximately 400,000 vehicles within a life cycle. The project will cover multiple models, including sedans, SUVs, and high-performance vehicles.


Incorporating the MagneRide suspension as the core of the chassis, this car maker said its prototype vehicles achieved substantial enhancements in chassis performance. This

**ABOVE:** A MagneRide demonstration vehicle outside BWI Group's Cracow Technical Center

finding highlights BWI Group's cutting-edge suspension technology and reinforces its leadership position in the automotive chassis and suspension sectors.

One of the key drivers behind the rising demand for active suspension is the increasing adoption of premium technologies across a broader range of vehicle segments.

BWI Group is now making luxury-grade suspensions more attainable for more companies, and proving to broader user groups that advanced driving dynamics don't have to come at a premium price.

The company's production facilities in Poland, Mexico and China employ full-process quality monitoring, logistics automation, and full value-chain digitisation to minimise error and improve production reliability. 

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