



Press Release

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Marelli's Fully Active Electro-Mechanic Suspension System honored at the "Digital Engineering Awards 2023"

The **Fully Active Electro-Mechanic Suspension System** developed by Marelli has received the 'Commendable' honor at [The Digital Engineering Awards 2023](#). Marelli's technology was recognized in the "Engineering Product of the Year" category, during an award ceremony held on December 6, in Frisco, Texas. The Digital Engineering Awards – organized in association with ISG (Information Services Group), L&T Technology Services, and CNBC TV 18 – celebrate and honor business and technology leaders challenging the status quo and creating a sustainable tomorrow through effective use of technology and innovation.

"We are honored to receive the 'Commendable' designation at the 2023 Digital Engineering Awards for our state-of-the-art suspension technology," said Antonio Ferrara, president of Marelli's Ride Dynamics division. "It's a testament to our commitment to innovation aimed at improving driving comfort and safety. Our team works hard every day to keep us at the forefront of technology, guided by the needs of our customers and vehicle owners, and I couldn't be prouder."

Marelli's new Fully Active Electro-Mechanic Suspension System is a breakthrough in automotive technology, enhancing vehicle safety, performance, and comfort, while ensuring high efficiency.

The electronically-controlled system autonomously decides the best behavior of each vehicle's suspension, neutralizing vibration and vehicle body movements. The system processes information in milliseconds and determines, through its smart algorithm, the actions required under different driving conditions.

The physical hardware consists of four electromechanical actuators, each composed of a brushless motor and a high ratio reduction gear, that connects to the suspension arm, with the ability to actively move the suspension. The motors are controlled by dedicated inverters which receive the stroke target from a central unit hosting the vehicle dynamics software.

A central Electronic Control Unit (ECU) controls each actuator, thanks to electronic hardware and specialized software. The software monitors a variety of signals – such as accelerations, suspension stroke, steer angle, main propulsion unit parameters, brake pedal, torque demand etc. – and predicts the actions that each actuator must apply to the suspension arm to set the appropriate reaction force. The drive unit integrated into the actuator receives a force demand from the central ECU and calculates the parameters (target current) to drive the actuators' electric motor, using an embedded algorithm. The system is powered by a 48V electrical circuit integrated into the vehicle's electrical network and guarantees the correct energy flow.

The Fully Active Electro-Mechanic Suspension System is oil-free and delivers up to 80% energy efficiency, as compared to passive or semi-active systems, and is therefore able to harvest energy, in line with a sustainable approach. It also occupies less volume than other available technologies,



providing greater freedom in vehicle interior design. As underlined by Piero Monchiero, innovation director with Marelli's Ride Dynamics division, "This technology can decrease motion sickness arising from activities such as reading or working on a laptop, which will become more prevalent with the advent of autonomous driving."

About Marelli

Marelli is a leading mobility technology supplier to the automotive sector. With a strong and established track record in innovation and manufacturing excellence, our mission is to transform the future of mobility through working with customers and partners to create a safer, greener, and better-connected world. With around 50,000 employees worldwide, the Marelli footprint includes 170 facilities and R&D centers across Asia, the Americas, Europe, and Africa.

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