Vibracoustic

Press Release

Vibracoustic seat dampers enable lightweight and NVH-optimized automotive seat constructions

Darmstadt, 17 March 2022 | Vibracoustic, a leading global automotive noise, vibration and harshness (NVH) expert, is enabling vehicle lightweighting while also enhancing the passenger experience by reducing seat vibrations. When integrated from the design phase, seat damper can improve NVH performance and lower overall seat construction weight.

With almost every vehicle manufacturer introducing new battery electric vehicles (BEV), lightweighting has become crucial to increasing efficiency and performance. At the same time, consumer expectations are dictating higher levels of comfort and minimal NVH disturbance in these quieter vehicles – a challenging proposition. Seat dampers from Vibracoustic allow vehicle manufacturer to develop front seats that are much lighter, while also reducing structural resonance vibrations.

The seat dampers are most-commonly integrated into the upper part of the backrest to counteract and reduce vibrations by up to 70 percent. The dampers can be customized to each application with a variety of design concepts and implementation methods.

Additionally, the technology can be used alongside heavy, internal seat systems – like massage, air conditioning and entertainment units – where the higher center of gravity increases vibrations, requiring supplementary damping. The system can be used to minimize headrest shaking or – when located underneath the seat – reduce the initial transmission of vibrations from the car into the seat structure. The damper is particularly effective for ensuring the comfortable viewing of entertainment systems, where very small vibrations can otherwise be perceived by rear-seat passengers watching front-seat-mounted screens.

While the seat dampers can also be used as a 'last-minute problem solver', the damper integration from the early stages of a vehicle's development is of a high importance. This allows engineers to optimize seat design and minimize their overall weight, with smaller damping requirements and straightforward packaging for the most effective and complete system integration.

Dr. Jörg Böcking, CTO at Vibracoustic, commented: "With our whole-vehicle approach to NVH, we are developing innovative systems that help address some of the greatest challenges faced by OEMs, including vehicle weight and BEV range. Our Isolators and Dampers team understands vehicle sub-system requirements and the importance of in-car entertainment and NVH management – areas of increasing importance given the rising popularity of quieter electric powertrain and autonomous driving systems."

About Vibracoustic

Vibracoustic is a leading global automotive NVH expert, providing customized solutions adding comfort and supporting efficiency, safety and durability. Its expertise along the entire product life cycle and all vehicle systems as well as its broad product range enable Vibracoustic to solve current and future NVH challenges across all automotive segments. With around 10,000 employees at 41 production and engineering locations across 18 countries, Vibracoustic serves all major automotive manufacturers. In 2020 Vibracoustic recorded total sales of 1.8 billion €. For more information, see www.vibracoustic.com

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Seat damper in the seat construction (left) and seat damper (right).