

Vehicle Acoustics Solutions

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Vehicles are faced with a variety of airborne and structure-borne noise sources, such as: wind, road, tire, engine and powertrain. To minimize the noise intrusion into the passenger compartment, a system level approach must be taken. This system level approach requires a focused effort to minimize noise at the primary sources and also an engineering initiative to desensitize the transfer paths through proper body design, sealing and the implementation of noise control materials. This article looks at different innovative materials applied to the body structure, their design and their placement to support a quiet interior. A series of vehicle case studies details the in-vehicle performance and benefits of both preformed and bulk material solutions as applied to the body structure: baffles, sealers, barriers, dampers and structural reinforcements. An emphasis is placed on low cost, low mass and high performance optimized solutions.

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