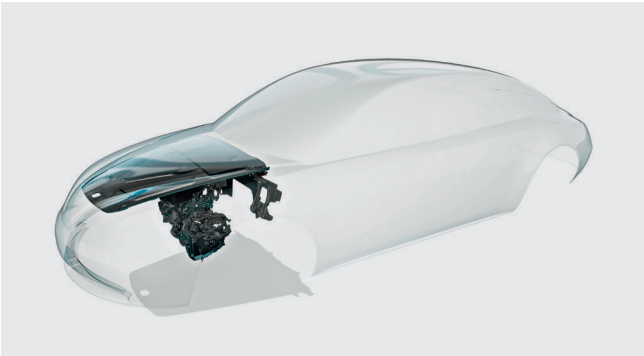
autoneum

Lightweight and Multifunctional Solutions
Engine Encapsulations and Hoodliners

Autoneum is the global market and technology leader in acoustic and thermal management solutions for vehicles and is partner to vehicle manufacturers around the world. The Company provides multifunctional and lightweight technologies and components for optimal protection against noise and heat.

Autoneum's innovations make vehicles quieter, lighter and safer and help to reduce fuel consumption and emissions. Based on long-standing expertise and unique technological know-how, Autoneum develops and produces systems and components for the vehicle engine bay, underbody and interior floor as well as for the body-in-white.



Available worldwide, designed individually.
Autoneum's customers are the leading light vehicle manufacturers in the automotive markets of Europe, Africa, North America, South America and Asia. Global presence and proximity to the customer is a key success factor and crucial competitive advantage. As a result, the Company carries out both R&T and manufacturing around the world. Sophisticated measurement systems and simulation software enable customized solutions.

Autoneum offers the following products for application in the engine bay:
- Engine encapsulations
- Hoodliners
- Outer dashes and other body-mounted absorbers
- Engine top covers
- Battery covers
- Fender insulators
- Water box shields

These products include a number of features and advantages:
- Interior and exterior noise reduction
- Thermal encapsulation
- Heat protection
- Light weight
- Integrated functions (water drainage, air ducts, etc.)
- Aesthetic functions

Customers of Autoneum's engine bay components:
BMW, Daimler, FCA, Ford, GM, Honda, Jaguar Land Rover, PSA, Renault-Nissan, Toyota, Volkswagen and Volvo

Theta-Cell and Theta-Fiber
Innovative foam and fiber absorbers

Ensure passengers' comfort. The engine bay compartment is a major source of heat and noise in any vehicle. Therefore, it has to be acoustically and thermally isolated in order to increase passengers' comfort. For that, components are required that are lightweight, thus reducing a vehicle's weight, fuel consumption and CO_2 emissions. Theta-Cell from Autoneum is a semi-rigid polyurethane foam with excellent acoustic absorption capabilities. It helps reduce the weight of engine bay absorbers in a limited packaging space. High heat resistance and low flammability guarantee optimal safety for engine bay applications.

Alternative to injected plastic. For applications that require even higher heat and vibration resistance, Theta-Cell can be combined with a carrier made of Theta-Fiber. Theta-Fiber is a fibrous material developed by Autoneum for peak temperature stability of up to 200°C and good vibration resistance.

Theta-Fiber is also used to replace plastic engine top covers for significant weight savings of at least 50%, as well as for bodymounted acoustic parts that require high stiffness with a limited number of fixation points.

Theta-FiberCell
Key technology for engine encapsulation

Lower CO_2 emissions. Early on, Autoneum anticipated the growing importance and vast potential of thermal insulation for automotive applications. Today, Autoneum combines the advantages of Theta-Fiber (fiber absorber) and Theta-Cell (foam absorber) in the Theta-FiberCell technology to provide outstanding acoustic performance, integrated thermal insulation and high temperature stability of up to 200°C. Further advantages of Theta-FiberCell include reduced weight, low flammability and high resistance to engine vibration. Depending on the application-specific composition, Autoneum's Theta-FiberCell technology contains a varying proportion of recycled fibers.

Significant noise reduction. Besides the acoustic absorption of internal (up to 3 dB) and external noise (up to 5 dB), the porous fiber-foam solution can store heat for a relatively long time after the engine is switched off. Tests done with a medium-sized vehicle show that the oil temperature was significantly higher with a Theta-FiberCell encapsulation compared to no special insulation. This temperature difference has a positive effect on the engine oil viscosity: a higher oil temperature results in lower internal friction in the engine and ensures more efficient driving. Each 6°C increase in oil temperature means 3 grams less CO_2 per kilometer.

Hoodliner made of Theta-Cell

Engine encapsulation made of Theta-FiberCell

For further information, please contact: Autoneum | Global Product Management Engine Bay | engine-bay@autoneum.com **www.autoneum.com**