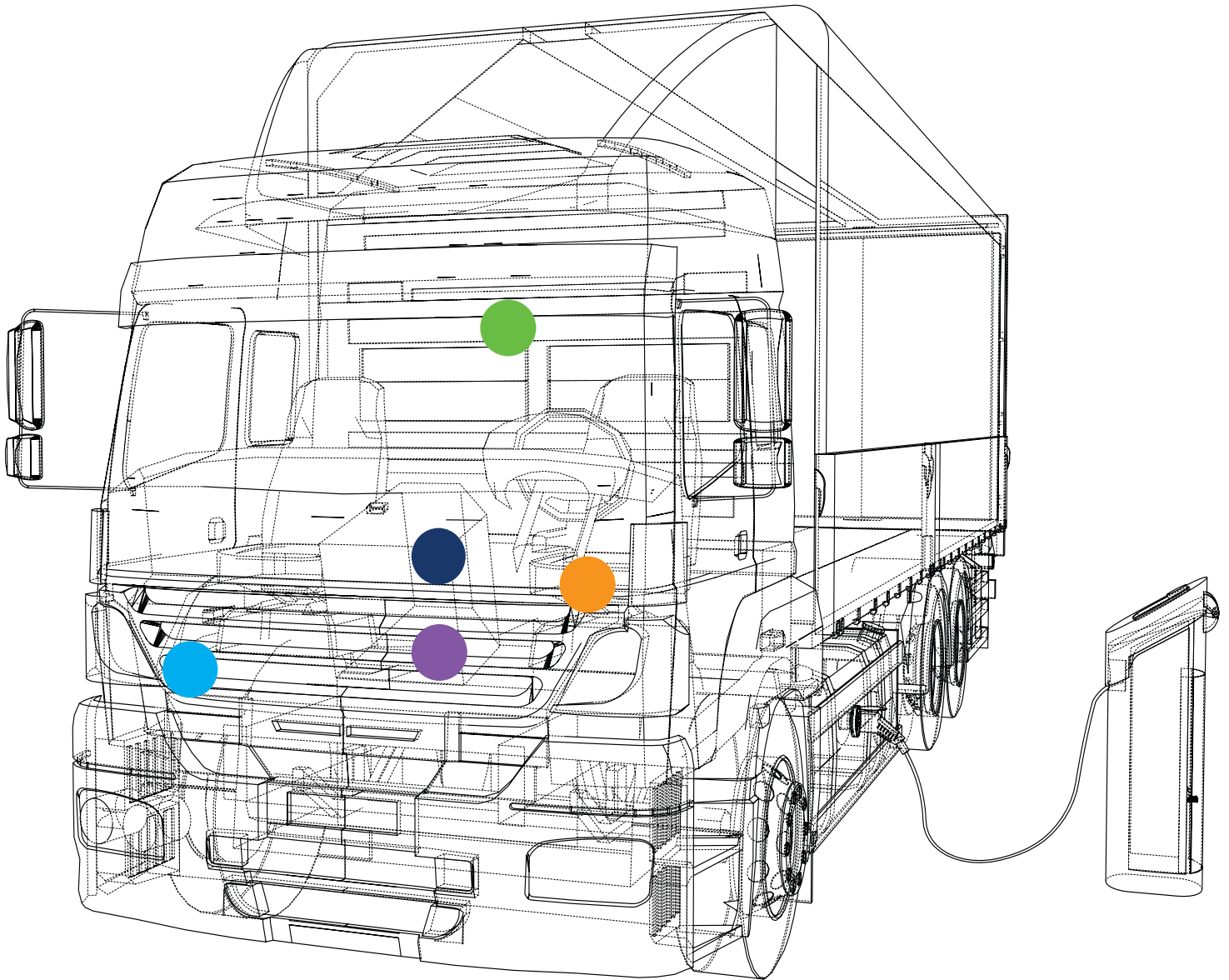


DESIGNED FOR LIGHTWEIGHT, ENERGY EFFICIENT, AND MORE COMFORTABLE ELECTRIC VEHICLES

Electric commercial vehicles are designed for the long haul – but heating and cooling demands can be a major source of battery drain, effectively shortening vehicle driving range. When the cab interior temperature is stable, more energy can be used where it's needed most: for transportation.

Thermal acoustic solutions from Aearo Technologies LLC are engineered to maintain a more comfortable cabin temperature – helping you reduce the load of heating and air conditioning. We offer packages designed to precisely and efficiently treat sources of heat, noise and vibration, often at a lighter overall weight than competitive solutions.





Taking a system approach

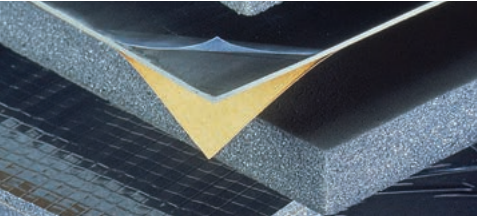
The first step is to understand the potential decibel levels and noise sources. Our Acoustic Technology Center uses a simple methodology to identify thermal and acoustic problems – and intricate modeling and validation to develop an efficient solution package. Data is generated by testing in our hemi-anechoic dynamometer room, hemi-anechoic room or one of our reverberant chambers. These rooms allow for measurement of either entire systems or components within the system.

We then use the data together with CAD models to design a package that either treats overall decibel levels or strategically target noise sources. Combined with in situ testing, this helps avoid the time and expense of trial-and-error testing – and validates that the package meets your goals.

- Structural Damping: ISODAMP™ Materials
- Thermal Acoustic Fibers: 3M™ Thinsulate™ TK Material Insulation
- Display/Sensor Protection Material: CONFOR™ SC Foam
- Thermal Acoustic Foam: E-A-R Acoustic Absorbing Foams
- Battery Foam Protection: ISOLOSS™ AG Battery Cell Cushioning Foam

Thermal Acoustic Foam

Acoustical absorbing foams are widely used to reduce noise levels within the engine compartment and cabin areas of the truck.



Thermal Acoustic Fiber Insulation

3M™ Thinsulate™ TK Insulation is a high performance, low density material whose acoustic and thermal properties make it ideal for the cab walls and floor.



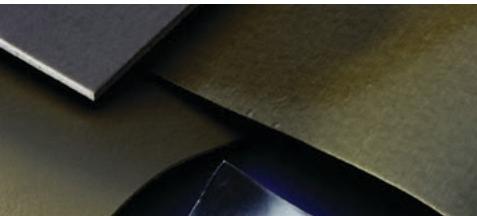
Battery Cell Cushioning Foam

ISOLOSS™ AG battery cell cushion foam is used between the cells of lithium-ion battery packs to provide cushioning and gap filling throughout the battery's charge cycle.



Structural Damping

ISODAMP™ damping materials offer practical, effective solutions for impact noise and structureborne noise.



Display/Sensor Protection

CONFOR™ SC foam can be used as a shock pad or gasket to help protect LCD and LED screens. ISODAMP™ molding elastomers are used as a component isolator to help reduce errors and buzzes, squeaks, and rattles (BSR) throughout the cabin.



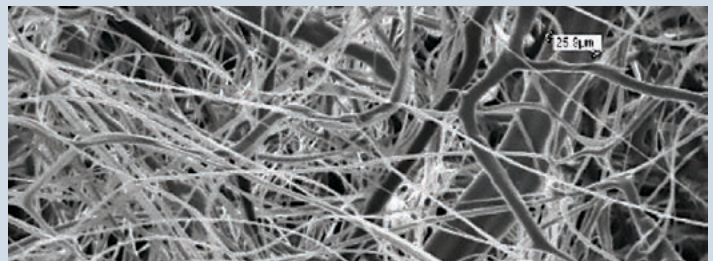
SHAPING THE FUTURE

For the first time, high-temperature 3M™ Thinsulate™ Insulation can be molded to form custom 3D shapes. Aearo Technologies LLC pioneered this breakthrough process with commercial vehicles in mind. Now, multi-part thermal and acoustic insulation can be streamlined to a single, self-supporting 3D molded part that is faster and easier to install. But the benefits go far beyond shape: 3D molded 3M Thinsulate insulation offers 2–3 dB better acoustic performance at 60% less weight compared to shoddy.

- **Increased acoustic performance:** better absorption and transmission loss with lower weight than shoddy
- **High temperature survivability:** 150°C (302°F) long-term operating temperature
- **Custom one-part design:** can be molded to variable thicknesses within the same part
- **High stiffness and loftiness:** molded structure can fill cavity and maintain its complex shape with structural rigidity
- **Quicker installation:** one-piece design speeds installation and simplifies attachment
- **Faster design cycle:** vertically integrated process from design and prototyping through testing, validation and production
- Additional weights and facings are under development



Thin and lightweight 3M™ Thinsulate™ insulation material is made of fine microfibers that trap air and block heat loss. Custom designed parts can be molded in a single piece for faster, easier installation – and to reduce leakage from gaps. The three-dimensional parts are stiff enough to be self-supporting while filling the application cavity.



Technical Information

The data listed in this data sheet are typical or average values based on tests conducted by independent laboratories or by the manufacturer. They are indicative only of the results obtained in such tests and should not be considered as guaranteed maximums or minimums. Materials must be tested under actual service to determine their suitability for a particular purpose.

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