



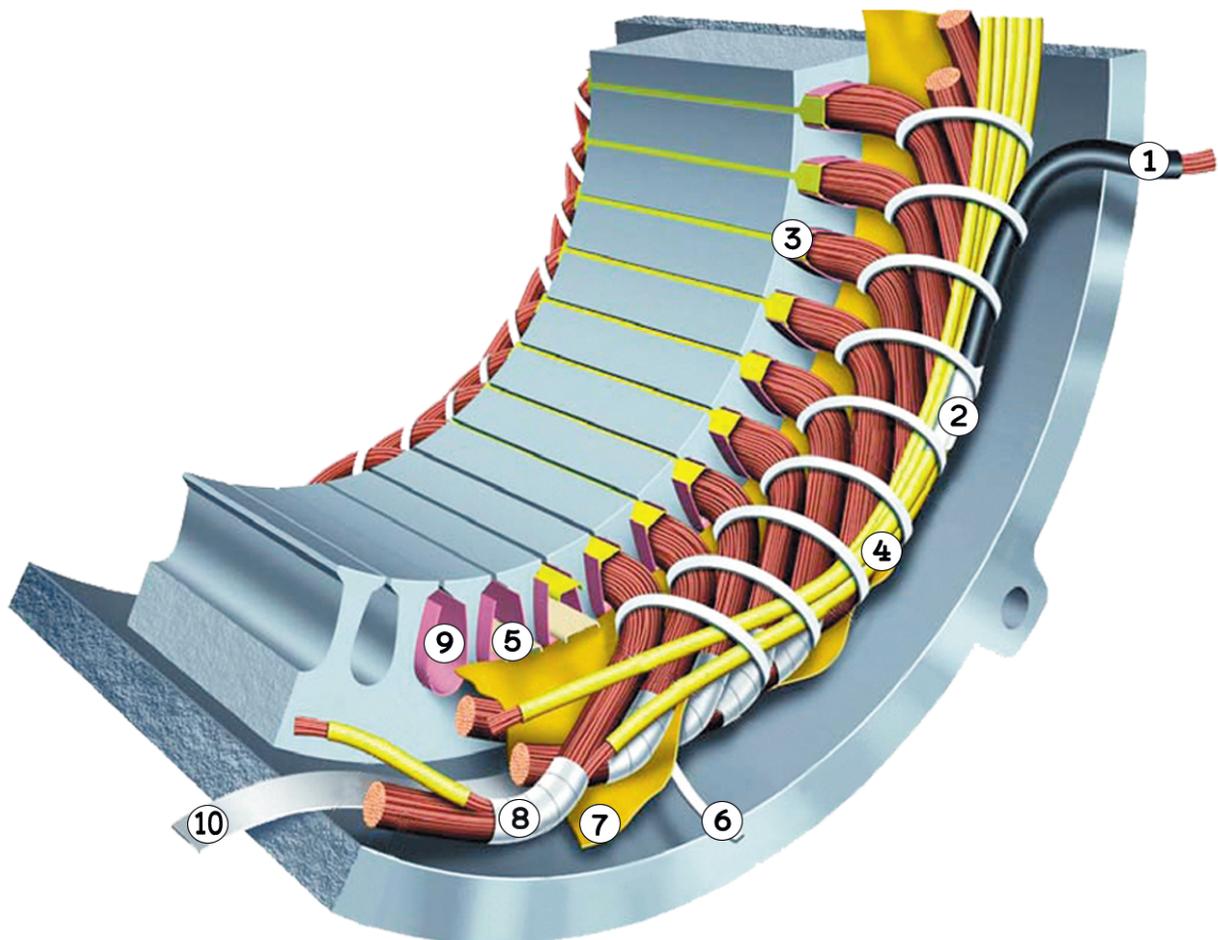
# ELECTRIC VEHICLE

EV MANUFACTURING | BATTERIES | CHARGING STATIONS

# ELECTRIC MOTOR

## EIS is a Leader in Supplying Materials for the Electric Vehicle Market

EIS is deeply rooted in the electric vehicle industry and as technology evolves we continue to evolve with it. By working with a company that has a legacy of supplying product to the traditional electric motor manufacturers and re-builders as well as electronic manufacturers it gives your company a head start in the current innovations and technology. EIS is a leader in supplying materials for the Electric Vehicle market and continues to make strides with innovative technology and strategic supply solutions. We have innovative fabrication facilities that can custom design materials, provide quick prototyping, and provide finished product quickly and efficiently.



## Electric Motor Breakdown

- |                   |                 |                  |                   |              |
|-------------------|-----------------|------------------|-------------------|--------------|
| ① LEAD WIRE       | ③ WEDGE         | ⑤ SLOT SEPARATOR | ⑦ PHASE SEPARATOR | ⑨ SLOT LINER |
| ② CONNECTION TAPE | ④ LEAD SLEEVING | ⑥ TIE CORD       | ⑧ COIL NOSE TAPE  | ⑩ BRACING    |

# MATERIALS



## Paper Insulation

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Slot, phase, separator and wedges



## Tapes

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Slit to width, die cut, double sided



## Magnet Wire

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Round and shaped magnet wire



## Potting Compounds

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Thermally conductive, non-conductive, silicone, epoxy



## Lacing Cord

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Coated and uncoated



## Tubing

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PTFE, non-shrink, shrinkable, colors



## Electrical Sleeving

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All grades and colors



## Lead Wire

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Custom harnesses, connectors, terminals, custom leadsets



## Resins

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Epoxy, polyeseter, conductive, non-conductive



## Custom Fabrication

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Any flexible materials, cut, slit, die cut, punch, adhesives

# BATTERY

## Battery Manufacturing for Electric Vehicles

A power source for electric vehicles and hybrid electric vehicles is a key component to the vehicle manufacturing process, and lithium ion batteries lead the market as a source of power. The complexity and power of batteries used in EVs often require that the manufacturer work with a knowledgeable materials expert for electrical insulation, electrical connection, heat dissipation, or packaging and protection. In working with a battery manufacturer, the materials converter should have particular expertise in terms of recommending materials that meet requirements for thermal conductivity and electrical insulation as well as the other requirements. A converter like EIS can be a valued partner for the manufacturer.

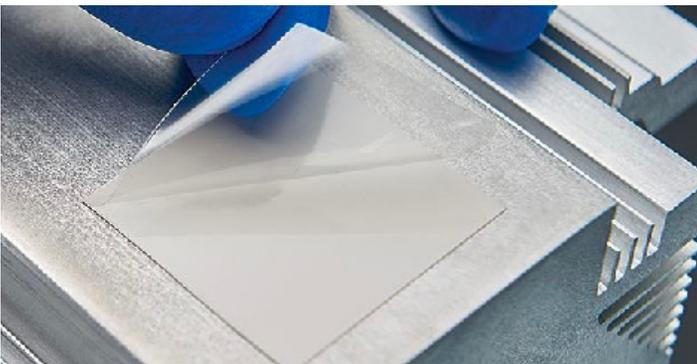
## Role of the Converter in Battery Manufacturing

Designing a battery of any size to perform at optimal levels requires dealing with critical considerations, such as:

- Use of an interface material to remove/dissipate heat
- Introduction of an electrical insulator
- Maintaining proper electrical contact
- Shielding from debris and environmental conditions
- Deployment of material for cushion and vibration absorption to protect the cells and electrical leads



Lithium Ion Battery



## MATERIALS

- Thermal Management
  - Die-cut
  - Insulating foam to cushion and protect the battery
  - Silicon sponges to improve heat dissipation
- Hot melt adhesives for potting

# CHARGING STATION

## Charging Station Materials Provided by EIS

EIS has invested in the electric vehicle market to help service the emerging products surrounding this industry. Charging stations are another area where we can provide solutions for manufacturing. Our fabrication and converting division can provide the products and expertise to help solve any manufacturing challenges. We have innovative facilities that can custom design materials, provide quick prototyping, and execute finished products efficiently. We have a complete engineering team that can help solve problems or provide guidance on materials for your design.

## MATERIALS



### Lead Wire

Custom harnesses, connectors, terminals, custom leadsets



### Electrical Sleeving

All grades and all colors



### Potting Compounds

Thermally conductive, non-conductive, silicone, epoxy



### Tapes

Slit to width, die cut, double



### Solder

Bar, wire, flux, paste, lead-free alloy, soldering mask, conformal coating



### Magnet Wire

Round and shaped magnet



### Electronic Assembly

Hand tools and ESD products



# AUTOMOTIVE FABRICATION

## Market Leading Solutions Through Expert Automotive Material Selection & Coating

EIS has many years of experience in providing converted material solutions to the automotive industry, providing automotive manufacturing materials for applications such as masking for headlights, automotive gasket materials, electrical insulation materials, thermal management materials, and die-cut materials that attach carpeting. ISO/TS 16949 and ISO 14001 certified fabrication of electrical insulation and thermal management for batteries and motors in electric and hybrid vehicles, adhesives to replace mechanical fasteners, gaskets, vibration dampening, buzz squeak and rattle, and masking for surface coating. EIS is involved in addressing requirements for automotive applications that require expert material selection and converting services to provide high-performance solutions.

## Transportation and Automotive Fabrication and Converting Services

As new high-performance technologies become available for hybrid electric vehicles (HEVs) and fully electric vehicles (EVs), EIS provides electrical insulating expertise and materials to manage these high-temperature environments. EIS can help design engineers working with HEVs and EVs to develop innovative solutions for electrical insulation, electrical conductivity, EMI/RFI shielding, heat dissipation, and cushioning for vibration absorption.



### Adhesives

- Thin bonding acrylic foam tapes
- Structural adhesives and sealants

### Vibration Dampening

- Vibration dampening foam
- Vibration dampening tape

### Taping/Masking

- Flame retardant
- Heat resistant
- Weather-proof
- EMI/RFI shielding

### Surface Protection

- Abrasion protection
- Heat protection

### More Solutions Include:

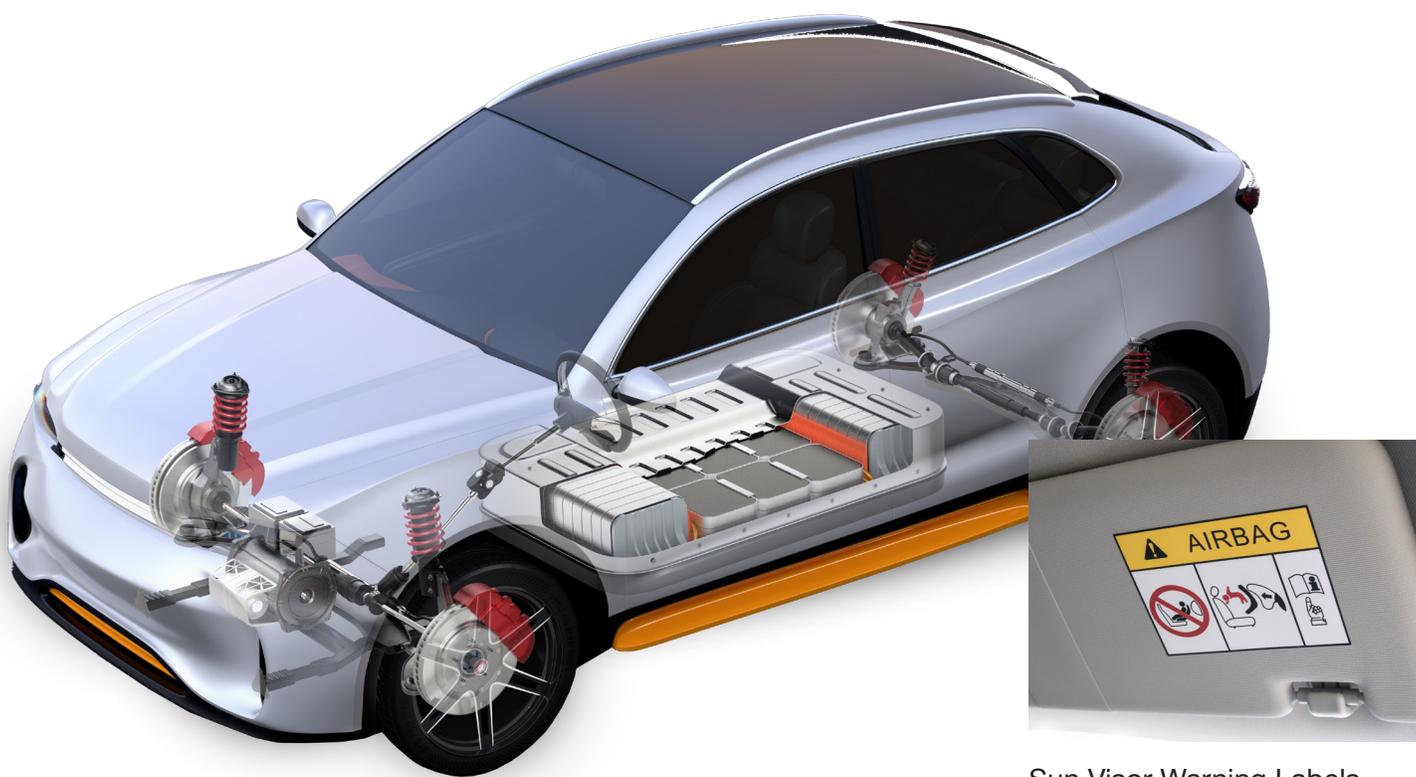
- Buzz, squeak, and rattle problems
- Black-out materials
- Hole covers
- Patching
- Gasketing, sealing, gap filling/hiding



# AUTOMOTIVE LABELS

## High Performance Automotive Labels for Interior and Exterior Applications

EIS utilizes a variety of specialty adhesives and facestock materials to stand up to the harshest conditions in under-the-hood and other exterior applications on today's vehicles. The ability to bond to low surface energy plastic and powder coated metal surfaces provided by our label's high strength acrylic adhesives mean that the automotive OEM and tier manufacturer can be confident that their labels will stay in place and readable for many years of service. EIS has label products that can resist the harsh chemicals, oils, moisture exposure and high temperatures that are present in under the hood applications as well.



Sun Visor Warning Labels

## LABEL EXAMPLES

- Engine Emission Labels
- Air Conditioner Warning Labels
- Under Hood Barcode Labels
- Sun Visor Warning Labels
- Fuel Tank Warning Labels
- Engine Components Labels
- VIN Door Labels
- Airbag Warning Labels
- Auto Information and VIN Labels
- Radiator Labels
- Tire Pressure and Information Labels



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