

EMOBILITY AND ELECTRIC VEHICLE (EV) CHARGING SOLUTION GUIDE

Empower the future of Electric Vehicle (EV) and Charging Infrastructure

Designed with deep expertise and advanced technology, TE Connectivity (TE)'s robust portfolio of Electric Vehicle (EV) and charging sealing, shielding and connectivity solutions to solve complex design requirements.

OVERVIEW

The Acceleration of electric vehicles into the everyday lives continues to drive technology changes and challenges to sustainability. More complexity and new features continue to be added to enhance functionality intended to optimize performance. This constant evolution create new challenges that have to be addressed by design engineers.



Rugged Design

Products that can withstand the daily wear and tear of consumer and user life (water, shock, high heat, etc.)



Minimized Fault Tolerance

Using simpler and improved products to enable operating capability



Operational Efficiency

Products protect important functionalities for increased operating efficiency



Regulations & Standards and improve performance

Compliance with local regulations and industry standards is crucial for EV charging station design



Efficient Charging

Protect and optimize high voltage components allowing fast and efficient charging and operations.



Durability

Protecting components and connectors from exposure to harsh elements and high voltage architecture.



Safety

Protect components from flame propagation and fire hazards.



Weight Management

Lightweight components to optimize performance of electric vehicles.



Signal Integrity

Throughput and signal integrity are key to optimize performance uptime all the time



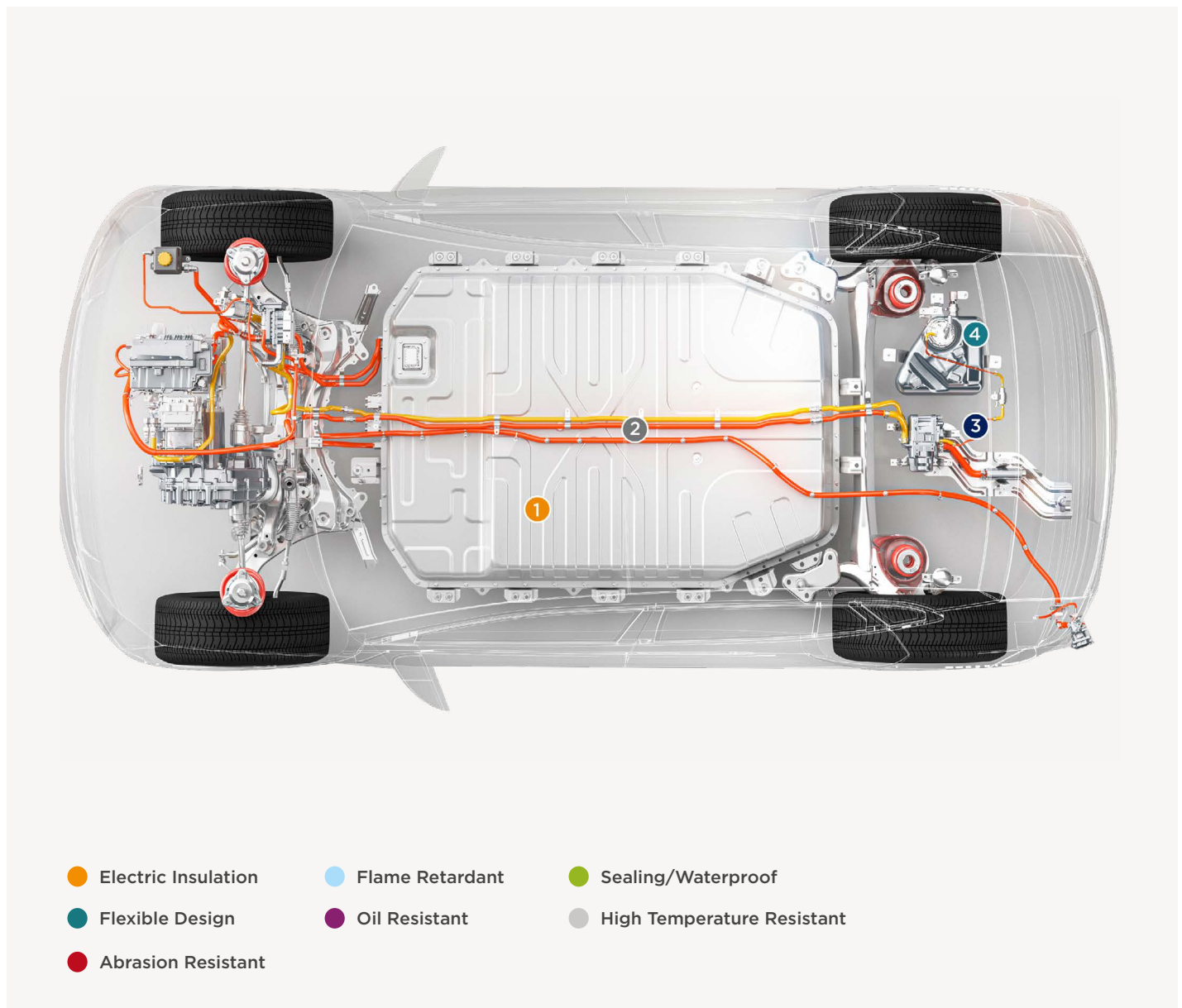
Thermal Management

Manage heat dissipation to improve reliability and prevent premature failure.

EV & HYBRID VEHICLE

As EV and Hybrid vehicles production continues to ramp up, it's clear that EVs present a number of unique challenges, including sealing and protection against hard environments including high voltage architecture. This means choosing protective products that can work within increasingly complex designs, as well as withstand the harsh environments inherent to a wide range of vehicle operation. Heat shrink tubing has proven to be the optimal solution for insulating components against heat and electric current, providing strain relief for connectors and splices, and protecting and sealing against water ingress, chemicals and abrasions.

Also important to consider is the greater susceptibility to electromagnetic interference (EMI). EVs employ high-power electronics to operate the electrical engine, producing high-level, low-frequency EMI. Interference is a common problem across electronics applications, but when we consider EV applications, where safety, efficiency, and performance rely on electronics, high levels of EMI could cause dangerous complications.



HEAT SHRINK TUBING

BATTERY PACK ①



EVSW

- Busbar ● ● ●

BATTERY GROUNDING



ATUM

HTAT

- Wire to terminal ● ●
- Wire to wire

HIGH VOLTAGE HARNESS ②



EVSW



EVDW

- Ring terminal ● ●
- Fixture ● ●
- Protection pipe ● ●

TRANSMISSION



SCT



VERSAFIT



ATUM

- Wire protection ● ● ●

E-MOTOR ③



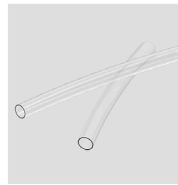
EVSW



EVDW

- Ring terminal ● ●
- Fixture ●

CAR BODY



ES1000



RKB-ILS



ES2000

- Wire to wire ● ●
- Splice sealing ●

CHARGE INLET ④



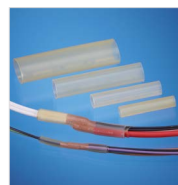
EVSW



EVDW

- Fixture ● ●
- Protection pipe ● ● ● ●

CAR BODY



RBK-VWS



FL2500



ES CAP



ESZH CAP



QSZH

- Wire to wire ● ●
- Splice sealing ●

CONNECTOR SOLUTIONS



[Economy Power 2.5 Connectors](#)



[Micro MATE-N -LOK Connectors](#)



[MTA & SL 156 Connectors](#)



[Signal Double Lock Connectors](#)



[VAL-U-LOK Connectors](#)



[2.0mm Signal GRACE INERTIA Connectors](#)



[Power Busbar Connectors](#)



[RAPID LOCK Power Connectors](#)



[ICCON Portfolio Connectors](#)



[FPC Connectors](#)

TERMINAL & SPLICES



[Ring terminals & Spade Lugs](#)



[Pre-Insulated Diamond Grip Terminal & Splices](#)



[FASTON Terminals](#)

RELAYS



[Power Relays T9V](#)

HIGH VOLTAGE CONNECTIVITY



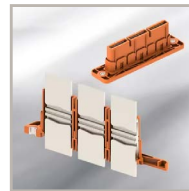
[HC-STAK 25 High-Voltage Interconnection System](#)



[HVCSJI Series](#)



[HV 2100 Series](#)



[HC-STAK Busbar Connector](#)



[AMP+ HVP 800 High-Voltage Interconnection System](#)



[AMP+ HVP 1100 High-Voltage Interconnection System](#)



[AMP+ IPT Shielded Ring Tongue](#)



[AMP+ HVA 280 High-Voltage Interconnection System](#)



[AMP+ HVA 630 High-Voltage Interconnection System](#)



[AMP+ HVA 1200 High-Voltage Interconnection System](#)

AC/DC CHARGING

As the world shifts to e-mobility and electric vehicles, there is an increased demand for convenient, easily accessible stations for safe and reliable charging. With a robust portfolio of compact, and high-performance antennas, connectors, and sensors, TE Connectivity (TE) is engineering the future of EV charging infrastructure.



ALTERNATIVE CURRENT (AC)

Charging your car at home or at work requires standard AC charging units. These units are typically cost-effective and can be installed with greater flexibility, making them especially well-suited for home installation and overnight charging.

TE's extensive portfolio of connectors and antennas enable space savings while demonstrating notable device performance and functionality.



DIRECT CURRENT (DC)

DC charging stations, typically found near highways or public charging areas, offer faster charging capabilities in a larger, more complex unit.

TE's high-power and wide-range solutions provide the fast-charging capabilities empowering the future of EV infrastructure.

EV Charging Units

AC

DC



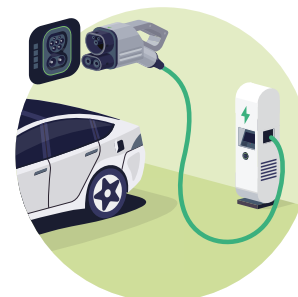
Socket



Wallbox



Station



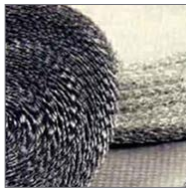
Station



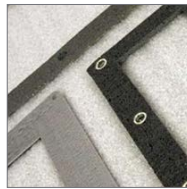
EMI SHIELDING



[Conductive Elastomers](#)



[Knitted Wire Mesh](#)



[Oriented Wire](#)



[Connector Gaskets](#)



[EMI Shielding Ventilation Panels](#)



[Jam Nut Seal](#)

HEAT SHRINK TUBING



[Single Wall Heat Shrink Tubing \(EVSW\)](#)



[Dual Wall Heat Shrink Tubing \(EVDW\)](#)

INDUSTRIAL & COMMERCIAL VEHICLE CONNECTORS



PowerTube Connector Series

As the newest addition to our HIVONEX connector and charging solutions, the PowerTube connector series is a modular and scalable solution for safe connectivity for high voltage (HV) applications, capable of delivering power up to 1000 V at 580 A.



IPT-HD Power Bolt High Voltage Connectors

Part of the HIVONEX product suite for high voltage E-mobility, the IPT-HD power bolt connector is a bolted solution aimed at MCU (Motor Control Unit), E-axle, and E-motor applications. Designed to withstand extreme temperatures, and engine-level vibrations, it also offers a new shielding design to improve electromagnetic compatibility (EMC) performance.



HVA HD400 High Voltage Accessories Connectors

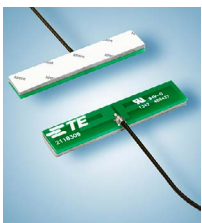
As electrification picks up pace in industrial and commercial transportation, ensuring that high voltage accessories like HVAC, heaters, hydraulic pumps and electronic power steering are performing to expectations in the field is more important than ever.



Charging Inlets

As hybrid and electric vehicles claim their share of the industrial and commercial transportation market, it's vital to ensure that designs enable fast, secure charging without compromising on the ruggedness required on the field. Our charging inlets, part of the HIVONEX portfolio, are ready to meet these challenges.

STANDARD & CUSTOM ANTENNAS



Standard Antennas

Our embedded and external antenna solutions provide high-quality transmissions in wireless devices in a wide variety of frequencies, including Bluetooth, cellular, GNSS, Wi-Fi, etc.



Custom Antennas

Near Field Communication (NFC) antennas, and a wide array of other custom solutions, are available to accommodate the mechanical constraints of your application.

RF COAX CONNECTORS



Micro-coaxial Connectors & Cables

With a rugged, compact design, our space-saving micro-miniature coax connectors are engineered for high-performance microwave systems.

CHARGING INLETS



[CI 500 High-Powered Charging Inlets for EVs](#)



[CI 250 High-Powered Charging Inlets for EVs](#)



[CI 200 High-Powered Charging Inlets for EVs](#)



[CI 32 AC-only Charging Inlets for EVs](#)



[AMP+ Charging Inlet Actuators](#)

WHY PARTNER WITH TE?

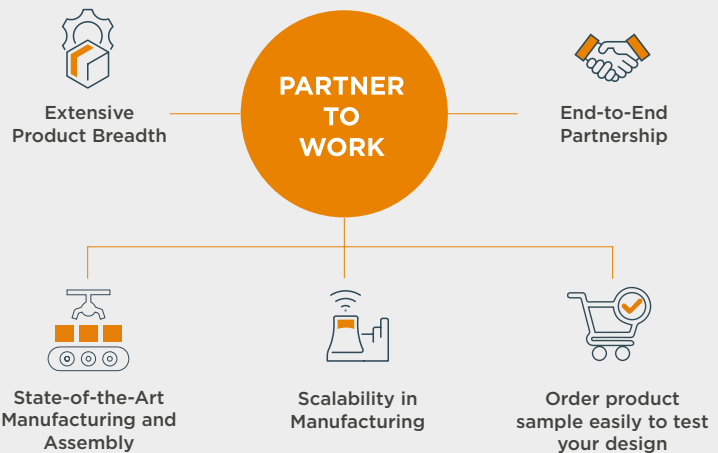
**EVERY CONNECTION.
EVERY BEAT.
ENABLING BETTER HEALTH.**



[SHOP ONLINE ORDER SAMPLES](#)



[CONTACT US](#)



Connect With Us

We make it easy to connect with our experts and are ready to provide all the support you need. Visit te.com/support to chat with a Product Information Specialist.

te.com

TE Connectivity, TE connectivity (logo), TE, and Kemtron Proven EMC Shielding (logo) are trademarks owned or licensed by the TE Connectivity Ltd. family of companies.

All other logos, products and/or company names referred to herein might be trademarks of their respective owners. The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2024 TE Connectivity. All Rights Reserved.

Published 02/24

TE Connectivity
Performance Materials

Our Family of Brands:
• Kemtron
• RAYCHEM