

# DuPont Innovative Solutions Support Growing Demand for Durable and Reliable Electric Vehicle Charging Stations & Accessories



## EV market trends signal rapid growth of EV infrastructure

The electric vehicle (EV) market is experiencing substantial growth and is on track for a decade of strong expansion. In 2020, EV global sales were in the green and increased by 39%. By 2030, it is estimated that EVs will represent half of all passenger cars sold globally. Based on current trends, 145 million EV cars, vans, heavy trucks, and buses are expected to be on the road by 2030.

Getting more EVs on the road will be impossible without the supporting infrastructure. Charging stations and accessories will be critical to accommodate the fast-growing global EV market. It is estimated that 23 million chargers will be installed annually by 2030.

## EV chargers require high-performance materials for durability and safety

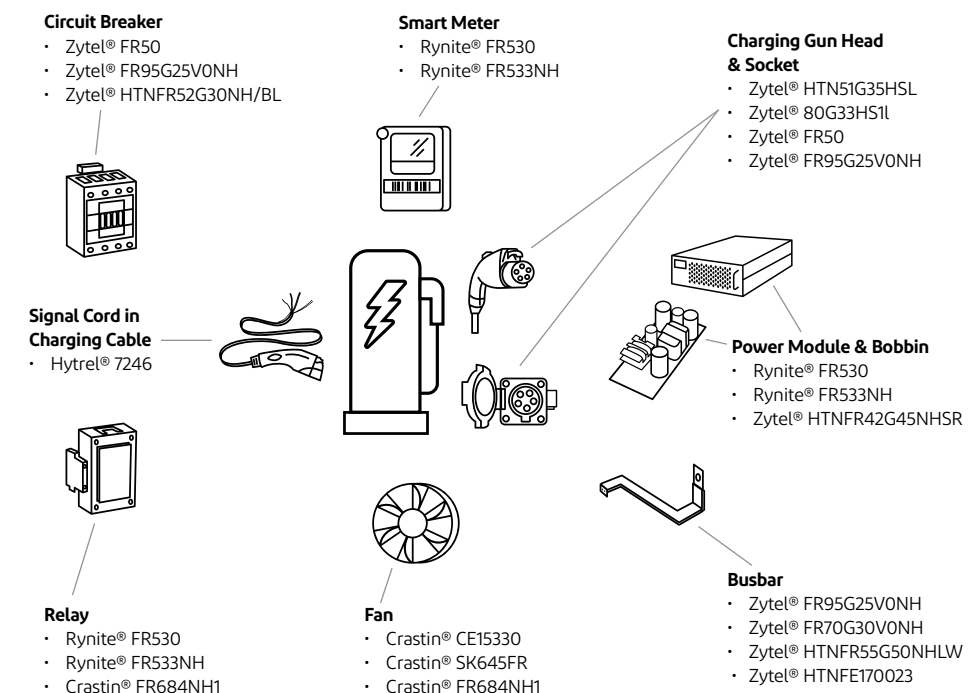
The various components of EV chargers require durable materials to meet a variety of manufacturing and safety requirements. DuPont's broad plastics portfolio provides solutions for manufacturing components for the three main types of EV chargers— making them more durable, more heat and flame resistant, and easier to manufacture.



Type of charger	L1	L2	L3
Supporting end products made with DuPont materials	<ul style="list-style-type: none"> <li>• Cord set</li> <li>• Simple controls</li> <li>• Enclosure</li> <li>• Charging gun</li> </ul>	<ul style="list-style-type: none"> <li>• Cord set</li> <li>• Simple controls</li> <li>• Enclosure</li> <li>• Charging gun</li> </ul>	<ul style="list-style-type: none"> <li>• Power module (inverters)</li> <li>• Safety and thermal management modules</li> <li>• Cord set</li> <li>• Enclosure</li> <li>• Dispenser (&gt;100+ kW)</li> </ul>
Industry drivers	<ul style="list-style-type: none"> <li>• Growth with EV sales</li> <li>• Basic personal charging port</li> </ul>	<ul style="list-style-type: none"> <li>• Growth with EV sales</li> <li>• Personal charging ports</li> <li>• Public charging spaces</li> </ul>	<ul style="list-style-type: none"> <li>• Intercity infrastructure</li> <li>• High-end passenger cars, buses, taxis</li> <li>• Highway corridors</li> </ul>

**While L1 and L2 chargers follow a simpler design, L3 chargers are significantly more complex, requiring inverters and safety and thermal management.**

### DuPont Product Solutions for L3 Charger Systems



## DuPont product portfolio for key applications

	Halogen				Non-Halogen			
	Zytel®HTN 51G35HSL	Zytel®PA66 80G33HS1L	Zytel®PA66 FR50	Rynite® PET FR530	Crastin®PBT FR684NH1	Rynite®PET FR533NH	Zytel®PA66 FR95G25V0NH	Zytel®HTN FR52G30NH
Suitable Applications	Charging Gun Head/Socket	Charging Gun Head/Socket	Charging Gun Head/Socket/ Circuit Breaker	Relay/ Smart Meter/ Coil Form	Circuit Breaker/ Relay	Relay/ Smart Meter/ Coil Form	Charging Gun Head/Socket/ Circuit Breaker	Charging Gun Head/Socket/ Circuit Breaker
Flammability	HB	HB	V0 and 5VA(1.5mm, 3mm), V-0(0.35mm, 0.75mm)	V-0(0.35mm), 5VA(0.9mm)	V-0(0.75mm)	V-0(0.4mm), 5VA(0.75mm)	V0 and 5VA(1.5mm, 3mm), V-0 (0.75mm)	V0
HWI (UL PLC)	0	1	0	0	1	0	0	0
HAI (UL PLC)	0	0	0	1	0	0	0(3.0mm), 1(0.75mm, 1.5mm)	0
CTI (UL PLC)	0	1	2	2	0	2	0	0
Weatherability	f1	f1	f1	f1	-	-	f1	f1
RTI Elec	150°C	130°C	130°C	155°C	130°C	155°C	160°C	140°C
Tensile Modulus	12 GPa	9 GPa	10 GPa	11.3 GPa	11.1 GPa	12.9 GPa	9 GPa	10 GPa
Charpy Notched-Impact Strength (-30°C)	10 kJ/m2	18 kJ/m2	8 kJ/m2	8 kJ/m2	6.4 kJ/m2	9 kJ/m2	4.5 kJ/m2	7 kJ/m2
Chemical/Oil Resistance	+++	++	++	++	++	++	++	+++

\* Charpy notched impact at cold temperature of Rynite® and Crastin® is measured at -40°C.

## Customized solutions

DuPont has 10 major Research & Development Centers around the globe where we collaborate with our OEM and supplier customers on solutions for electric vehicles, accessories, and infrastructure.

Ask how our application development engineers and specialists can help you develop durable, high-performing, and innovative charging station components.

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