

Delivering performance and sustainability for EV cooling lines

CHALLENGES

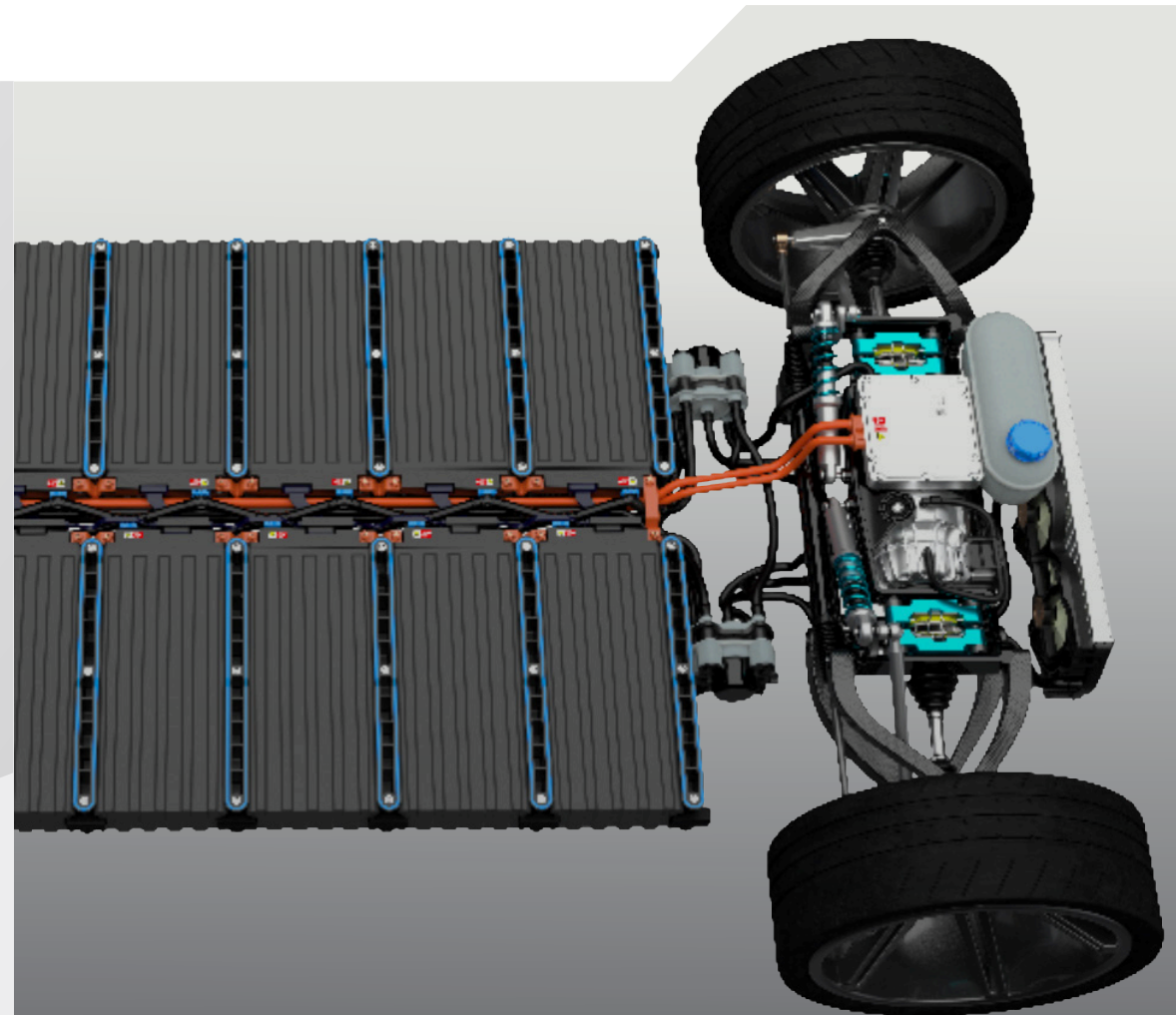
- Increased cooling line requirements in xEVs are a direct result of the vital need to manage heat and energy for maximum battery operation, safety, and range.
- As a result, the cooling lines themselves can be up to three times the length of those needed for ICE vehicles.
- For these large components, engineers are challenged with finding a more sustainable solution that will still hold up to aggressive fluids and also offer sufficient design flexibility.

REQUIREMENTS

- Critical performance needs include resistance to automatic transmission fluids and common fluids found in coolants and immersion cooling systems.
- Thermoplastics used in cooling lines also need to defy degradation and stress cracking.
- Given the size of cooling tubes in EVs, using more sustainable options to make them helps OEMs pursue their environmental goals.

SOLUTIONS

- DuPont™ eCool Multilayer Technology, based on **Zytel® LCPA** (Long Chain Polyamide) grades co-extruded with thermoplastic olefin elastomer, offers:
 - Lightweighting: weight reduction versus thicker EPDM rubber hose reinforced with textiles
 - Sustainability: lower Global Warming Potential (GWP) than some alternative flexible polyamide thermoplastics
 - Coolant/Hydrolysis resistance: barrier and stress resistance to coolant chemistries
 - Customization: ability to test and customize solutions at DuPont Automotive Electrification Centers of Excellence
 - Cost management: cost-effective solution for EV cooling lines
 - Design freedom: positioning of thermoplastic olefin elastomer layer can be customized to improve the flexibility of tubes/pipes



Lightweight



Heat resistance



Chemical resistance



Customization



Design freedom



Lower GWP