



Case Study: GORE® Automotive Vents for Powertrain

Enabling an On-Time Launch and an Extended e-Motor Lifetime

? CHALLENGE

Toyota Motor Corporation experienced venting issues while developing a new e-axle containing lubricated gears and a higher-voltage e-motor. This new application demanded a venting solution that would satisfy very specific requirements:

- Bi-directional pressure equalization, to resist coil-arcing and enhance motor life.
- Robust protection against water intrusion and dust ingress, to protect the gears and motor.
- A single, standardized solution that could be implemented across multiple models, manufacturing sites and countries, to reduce inventory complexity and assembly costs.

Traditional venting solutions proved unable to satisfy all these requirements, and the related issues threatened to derail the OEM's launch deadline for multiple HV/PHEV models.

💡 SOLUTION

Toyota has integrated Gore Automotive Products into their vehicles for more than 20 years, but this was the first time they asked Gore to partner on a powertrain solution. Gore responded quickly, as the launch deadline was rapidly approaching. Gore and Toyota worked as a team to develop a specification and test method to qualify Gore's proposed venting solution.

Gore and Toyota also collaborated to resolve an additional, critically important design challenge: this high-performance venting solution also had to be low-profile, to fit the limited space available between the vehicle body and the high-voltage e-axle.



★ RESULTS

Because Toyota knew of Gore's "Fitness for Use" commitment, they could trust that Gore's low-profile venting solution would be achieved on time, and would perform as promised.

The Gore solution met all performance requirements necessary to enhance e-motor lifetime, and offered the OEM greater design flexibility by providing a single venting configuration that could work across multiple models. Eliminating the need for model-specific venting designs can enable Toyota to reduce overall parts cost, inventory items, and assembly labor at multiple manufacturing sites.



Together, improving life

Learn more about compact, waterproof
[Gore Powertrain Vents](#)

Why Choose Gore Powertrain Vents for All Your e-Axle and e-Motor Applications?

Our compact, waterproof vents can enhance the reliability and longevity of electrified and traditional powertrains through pressure equalization and robust ingress protection that meets global OEM standards for water wading and environmental exposures.



PROVEN PRODUCT PERFORMANCE

- Broad portfolio and deep (+3-decade) application expertise
- Product functionality and consistent quality
- Easy installation and proven reliability

INNOVATION CAPABILITIES

- Customizable material & membrane characteristics
- Ongoing development: materials & technologies
- Sustainability: focus on reduced carbon footprint

SERVICE & OPERATIONAL SUPPORT

- Internationally qualified (e.g.: IATF16949:2016; ISO14001)
- Regulatory compliance (e.g.: REACH)
- Global supply chain stability and production scale-up capacity
- Worldwide tech service & support

To request samples or discuss the technical aspects of your new powertrain project

- Contact your local Gore representative
- Submit the "Contact Us" form at gore.com/autovents

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