

ACCELERATING ROAD SAFETY WITH DEVELOPMENT AND CUSTOMIZATION EXCELLENCE

Voltaira played a central role in the creation of an innovative safety solution by leveraging its excellence in product co-development and manufacturing. Today, our extensive customization capabilities facilitate the integration of the solution in a growing number of vehicles, enhancing the safety of our roads.

The journey began in 2012, when a leading Tier 1 automotive supplier approached Voltaira with the specifications for a wiring harness for an electro-mechanical anti-roll stabilization system. The solution was completely new to the market and provided significant cost-savings over its hydraulic-powered counterparts. However, this supplier needed a wire harness that would reliably transmit electrical power and torque signals to the electronic control unit (ECU).

The requirements were challenging: robust chemical resistance to salt, the capacity to endure an extraordinary number of bending

cycles, and the ability to maintain strict installation space limitations. Nevertheless, our team leveraged our core competencies in wire harness and connector design to deliver a groundbreaking development concept. This concept not only met but exceeded the demanding specifications of the Tier 1 supplier and its prestigious customer, an Original Equipment Manufacturer (OEM) known worldwide for its luxury sports cars.

FROM DEVELOPMENT TO MANUFACTURING

Our solution was a complex dynamic wire harness, integrating three 48-volt high-voltage power cables and a data cable for signal transmission. The partially dynamically routed design posed a significant challenge, as the OEM required the harness to withstand 2 million bending cycles without failure. Nevertheless, our experience in developing dynamic wire harnesses, and our skills in co-development guaranteed the maintenance of high-durability standards.



CHALLENGES

- Need for customized solution
- Demanding robustness requirements
- Space constraints
- Small tolerances and clean manufacturing



SOLUTIONS

- Integrated wire harness solution for electromechanical anti-roll stabilization system
- Customizable design
- Advanced manufacturing technologies



RESULTS

- Contributed to a first-to-market solution
- Solution met all customer requirements
- Unique and highly durable harness design



The connector that connects the wire harness to the Tier 1-developed actuator is strong evidence of Voltaira's ability to create solutions that seamlessly integrate with our customers' products. Our team designed a single connector that combines three shielded power cables using a clamp and our overmolding expertise. This patented design ensures that the connector can withstand frequent bending movements while remaining compact enough to meet space limitations.

TAILORED TO EVERY NEED

Today Voltaira supplies more than 200,000 anti-roll wiring harnesses annually for multiple OEMs, servicing a multitude of vehicle models with varying specifications for our product. This reflects our outstanding customization capability, as well as our ability to manage the parallel production of numerous variants. These are competencies that are essential to deliver solutions tailored to our customers' requirements.

During the initial and the subsequent projects, Voltaira closely collaborated both with its Tier 1 partner supplying the anti-roll stabilization systems, and with its OEM partners to develop solutions that meet the demanding

The result was a special wire harness solution that met all customer specifications during our in-house design verification process, after which we started production on a semi-automated production line. For the high-standard manufacturing of the harness we leveraged our expertise in resistance welding and overmolding, in addition to our wealth of experience in maintaining small tolerances and cleanliness during manufacturing processes.

specifications. For this we leveraged our ability to co-develop products that seamlessly integrate with other solutions, and which compelled more than 60 companies to choose Voltaira as their strategic development partner. Additionally, the anti-roll wire harness is also a testament to our extensive in-house value chain: we did both the development and validation in-house, similarly to the high-quality series production continuing to this day.

Voltaira's advanced wire harness technology has resulted in an innovative solution that improves road safety, increases comfort and reduces fuel consumption. Through our expertise in co-development, customization and manufacturing, Voltaira continues to be a trusted partner to automotive companies, delivering tailored solutions that meet the industry's needs.



2 MILLION

Bending cycles without failure



**PRODUCING MORE THAN
200,000**

anti-roll wiring harnesses
annually



*Illustrative (top) and Voltaira
product images