Raeon x Everrati

CASE STUDY

Raeon Battery x The Everrati GT40

Introduction

The Everrati GT40 project represents an exciting collaboration between Everrati and Raeon, centred on the electrification of the iconic Ford GT40. Revered for its dominance at Le Mans in the 1960s, the GT40 is renowned as one of the most celebrated and distinguished sports cars in automotive history.

The objective of this project was to preserve the vehicle's celebrated character while enhancing its capabilities through cutting-edge battery technology specifically designed for high-performance applications.

Raeon's expertise in developing bespoke battery solutions, blending innovative engineering with meticulous attention to detail, made it the ideal partner for this sophisticated transformation. At Raeon, we are driven by a commitment to advancing electrification through tailored systems that deliver exceptional power, efficiency, and reliability at a price that unlocks electrification for both niche applications and higher volume vehicles.

The aim of this project was to preserve the essence of the original GT40, whilst using modern technology to enhance its capabilities and sporting characteristics. Raeon's custom battery pack integrated seamlessly with the GT40's original structure, achieving optimal performance without compromising heritage. This case study details how Raeon engineered a customised battery solution for the GT40, overcoming challenges of space, weight, and performance, while preserving the integrity of a timeless icon.

Why Raeon Was the Ideal Partner for This Project

Raeon's comprehensive expertise in battery technology, particularly in creating custom batteries for unique applications, made it the preferred choice for Everrati's Ford GT40 electrification project. The collaboration was underpinned by Raeon's thorough approach to component selection, design precision, cooling systems, and pack integration, all while adhering to the specific demands of the vehicle.Through Raeon's patent pending approach, the battery modules allowed for a higher power density, meaning more capacity for the same space compared to Everrati's previous GT40 battery pack. The new Raeon battery pack boasts a 51% capacity increase, without requiring any alterations to the vehicle.

Cell Selection Process

Raeon engaged extensively with Everrati to gain a deep understanding of the project's precise performance objectives, safety considerations, and spatial constraints. Leveraging a broad network of over 50 cell suppliers globally, Raeon rapidly evaluated various cell technologies to identify the most suitable option for the GT40.

The chosen cells **(Molicel)** were selected for their high energy density, robust discharge capabilities, and resilience to thermal stresses, ensuring powerful acceleration, consistent range, and reliable operation under diverse conditions. Specific considerations included achieving an optimal balance between power output and efficiency, along with maintaining compatibility with the vehicle's architecture.

Design and Structural Integration

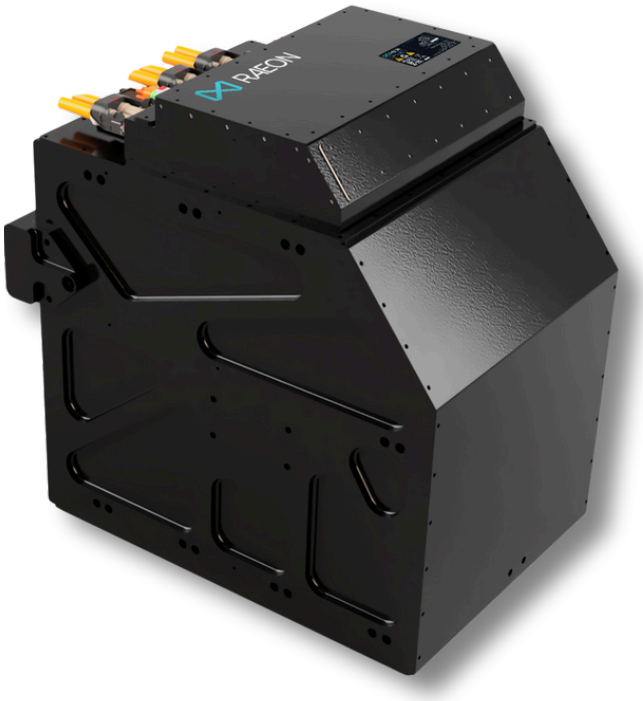
Electrifying a classic vehicle such as the GT40 presents unique engineering challenges, especially where original structural elements and mounting points must be preserved to comply with regulations and avoid extensive recertification processes. This necessitated a battery design that could be integrated seamlessly within the car's existing architecture.

Raeon's proprietary design and manufacturing methodologies allowed for the development of bespokebatteries that adhered precisely to the GT40's dimensional constraints. The solution involved custom-shaped modules equipped with advanced liquid cooling systems, featuring a single-sided cold plate configuration to enhance thermal management.

This design approach effectively dissipated heat from the cells while maintaining minimal weight and efficient packaging.

Battery Management System and Performance Optimisation

Raeon's comprehensive battery solution encompassed the design and supply of an integrated Battery Management System (BMS) and Power Distribution Unit (PDU), both essential for monitoring and optimising the performance of the GT40's battery. The system was engineered to provide precise control over the battery's operation, ensuring safety and reliability throughout various driving conditions. The development of a structural pack enclosure ensured the final battery assembly was both robust and lightweight.



The structural design underwent rigorous analysis to confirm its ability to withstand the mechanical stresses and vibrations typically encountered by high-performance vehicles like the GT40. By prioritising efficiency and durability, Raeon ensured that the system-maintained integrity without compromising the vehicle's aesthetics or dynamic capabilities.

Through close cooperation with Everrati, Raeon achieved an optimal fit within the GT40's limited packaging space, providing a fully integrated, plug-and-play solution tailored to the vehicle's unique requirements.

Conclusion

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