

HORIBA MIRA



Supporting a novel approach to vehicle manufacturing

Case study overview

Electric platform leader REE Automotive created an innovative modular platform concept for electric vehicles. HORIBA MIRA was engaged to provide full engineering and test support to the project, accelerating the platform's journey from concept to working prototypes.

The requirements for the project were far-reaching. Engineers from HORIBA MIRA were embedded in a number of REE Automotive's delivery teams, supporting aspects such as attribute leadership, chassis design, simulation, project management, certification, cybersecurity, and functional safety.

Engineering team deployed: Flexible engineering support, with up to 50 personnel working on the project.



Full engineering support (design, attribute development, test and validation, build business infrastructure growth)



Electric commercial vehicles, last mile delivery, urban transportation



UK and Israel



REE have been extremely impressed with the quality and level of support we've received from MTP and HORIBA MIRA. They have been able to support our rapid growth at each point and without them we wouldn't be in the strong position we are in now for delivering our novel technology.

Dr Peter Dow, VP Engineering
REE



Approach

REE Automotive established its UK Centre of Engineering Excellence at MIRA Technology Park in Nuneaton. HORIBA MIRA supported the UK team's growth from its infancy through to full strength with the provision of a base of operations, engineering consultancy on business fundamentals - such as the selection of key software solutions and health and safety processes - resident engineers forming the initial Chassis System Design Team, with full finite element analysis (FEA) and computer-aided engineering (CAE) coverage operating as part of REE's internal organisation. Specialist support for the novel by-wire systems they planned to use was also provided for Functional Safety. HORIBA MIRA also provided full workshop facilities for the initial prototype build, along with close guidance on all aspects of dealing with high voltage systems prior to vehicles being commissioned, tested and validated on HORIBA MIRA's world-class proving ground and test facilities, less than 100 meters from where the vehicles were built.

In order to fast track the project from concept through to production, HORIBA MIRA delivered the detailed design of the corner units based on initial concepts. These corner modules combine with a central skateboard to form REE Automotive's innovative modular platform. Additional support stretched into almost every aspect of the engineering development, with HORIBA MIRA providing flexible access to its diverse range of engineering expertise. This enabled the development teams to react very quickly to emerging challenges and enabled the core REE teams to really focus on the novel solutions needed whilst having confidence other areas were in safe hands and would be ready when needed. Parts could be designed, prototyped, and tested on the vehicle all within the same campus, sometimes within hours of the requirement being identified.

Successes and benefits

HORIBA MIRA's support enabled REE Automotive to develop its innovative modular vehicle platform from a concept to a working prototype quickly and effectively. Key benefits included:

- ✓ Quick and flexible access to HORIBA MIRA's **vast engineering expertise**, covering numerous specialist areas and **reducing risk** through using proven processes with an open, friendly, and **highly-experienced** team
- ✓ **Prototype build facilitated** as a single entity through the provision of workshop space, health and safety infrastructure, and on-site fabrication and manufacturing services, co-located with engineering to efficiently support build issue resolution
- ✓ **Fast turnaround** of physical testing at HORIBA MIRA's on-site Proving Ground, adjacent to the build
- ✓ Establishing **self-sufficiency** within the client organisation as it grew; **seamless handover** from engineering service supplier (ESS) through to the new core OEM team



Deliverables

- ✓ Office and workshop residency
- ✓ Prototyping
- ✓ Multi-year partnership
- ✓ Complex cross-functional framework
- ✓ Concept realisation
- ✓ Bespoke engineering solutions
- ✓ Test and development
- ✓ Functional safety