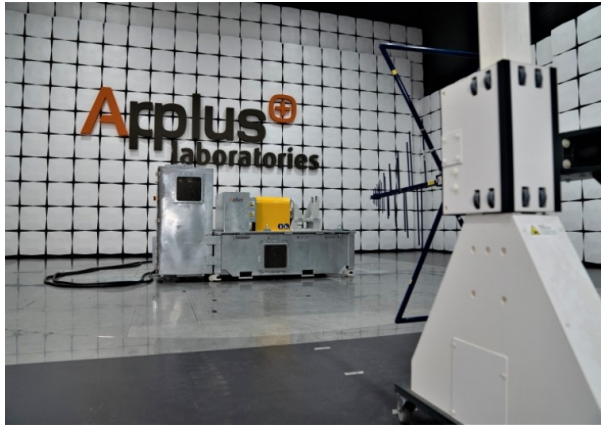


# E-Motor EMC Testing

Ensuring the electromagnetic performance of your e-motor in our dedicated EMC laboratories equipped with a special dyno to test e-drives in motion.



E-Motors are at the core of electromobility, and alongside batteries, the most critical components that will determine the performance and autonomy of new energy vehicles. E-motors must be coupled with an inverter to form an Electric Drives Unit. These units could be integrated into a larger system, the e-Axle, combining the electric motor, the power electronics, and the transmission, to provide a compact and efficient solution to power electric and hybrid vehicles.

## Testing e-motors' EMC performance

The electromagnetic compatibility of the e-motor with the rest of the electronic systems is a key component of the vehicle's electric architecture. E-motors can be tested under various configurations each one simulating different operation conditions:

- E-motor in static configuration: idle / rotor locked
- E-motor under dynamic configurations:
  - Driving mode
  - Regeneration or braking mode

All our EMC labs are equipped to test e-motors in static and back-to-back configurations, with dedicated high-voltage power supplies, cooling systems, as well as communications tools available (INCA, Vector CANoe, and LabView).

## Test bench solutions to test e-Drives in motion

In order to test the e-motor in the most realistic operation conditions of speed and torque, a special dynamometer is required. We can meet this condition thanks to our two different solutions for testing e-drives in motion, in our laboratories in Europe and China.

- **Mobile Dyno:** Located in our UK lab in Silverstone, this portable test bench of 140 kW can be set up on the turntable of our 10m measurement semi-anechoic chamber. While the e-motor and the EMC-silent dyno spin, we can take EMC measurements at 360 degrees. The dyno was developed in-house by our engineering team.
- **Fixed Dyno:** Located in our Shanghai Lab, a fixed dyno of 220 kW placed outside the semi-anechoic chamber, connects through a shaft with the e-motor.
- **Both systems are bi-directional,** which allows it to simulate different driving mode configurations, including road simulation and regenerative braking mode.