A HORIBA COMPANY MIRA

Advanced Battery Development Suite (ABDS)

Our new state-of-the art facility provides advanced capability for testing: cells, modules and high voltage battery packs. This includes EMC testing for high voltage battery packs and plug-in hybrid and electric vehicle charging systems.

This facility, combined with our world class battery systems engineering and consultancy service, provides a centre of excellence for electrification technology, enabling our customers to realise their next generation of class leading products.

The state-of-the art facilities provide high accuracy measurement of cell performance and characteristics, as well as capability to test the latest high performance battery systems to the peak of their operational capabilities. We have been a leader in automotive battery testing and engineering, providing comprehensive battery engineering and testing services to our global customer base for the past 10 years. This latest investment ensures our customers continue to have access to the cutting-edge in battery testing technology.

HORIBA MIRA also offer a comprehensive range of battery test services including regulatory testing such as UN ECE Reg. 38.3, Reg 100 and Reg 10 (EMC) plus mechanical, thermal and electrical testing up to and beyond operational limits.

Benefits of our service:

- High resolution cell characterisation
- High performance battery pack testing
- HiL testing for battery management systems, powertrain controllers and high-voltage components
- Cell / Module environmental chamber
- Plug-in vehicle and battery EMC testing
- Advanced Asset Protection System
- Secure, confidential test centre

HORIBA MIRA Ltd.
Watling Street, Nuneaton, Warwickshire, CV10 0TU, UK
+44 (0)24 7635 5000 | **www.horiba-mira.com/enquiries**

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Facility Overview

Control Room

1. Control PC

Workshop

2. Battery Exerciser
3. Thermal Chamber
4. Cell Exerciser
5. Cell / Battery Cooling System
6. Battery Under Test
7. Nitrogen Generator
8. Nitrogen Purge Unit
9. Hardware-In-The-Loop (HIL) Rig
10. Asset Protection System

Nitrogen Generator

- Continually produces nitrogen from compressed air using a carbon molecular sieve, generating up to 1000L per minute

Nitrogen Purge Unit

- This storage vessel stores up to 2000L of nitrogen at 8 bar and is part of the safety system
- Nitrogen released into the thermal chamber in the event of a fire

Battery Exerciser

- Allows performance and functionality verification of battery packs by performing accurate and representative current or power cycling profiles
- Voltage range: 0-1000V
- Current range: +/- 1200A
- Power capacity: up to 600kW

Thermal Chamber

- Ensures a controllable and consistent ambient temperature throughout the cell characterisation / ageing test duration
- Chamber size: 1m^3
- Temperature range: -40°C to +180°C

Cell Exerciser

- Allows cell characterisation and cell ageing tests to a high level of precision over the entire operating range of cell operation
- Voltage range: 0 - 8V
- Current range:
  6x channels / 500A each / ±3000A total

Cell / Battery Cooling System

- Controls the cell / battery to the desired test temperature and removes influences from aspects such as cell internal heat generation
- Heating capacity: 8kW
- Cooling capacity: 7kW (at 20°C)

1600A LV Swichboard

- Provides mains power to test equipment with in the facility

Testing Area

- A bespoke test area that's remote from the power electronics, where the battery is placed under test and subjected to performance and functionality verification plans
- Hardware-in-the-Loop testing allows the simulation of vehicle, charger and battery pack interactions without the need for a full vehicle
  - This simulates a working environment for the target hardware, isolating the functionality of the unit under test

EMC Traction Battery Test

- ISO17025 UKAS Accredited EMC Test facility
- HV Power Cycling available in Chamber
- Electrical Workshop
- 600kW DC HV Power Cycling available
  - Electrical Transient Tests
  - Electro static Discharge
  - Large Ground Plane
- Large Semi Anechoic Chamber
  - Radiated Emissions
  - Radiated Immunity
  - Bulk Current Injection
  - Conducted Emissions
  - Remote CAN monitoring (optical)

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