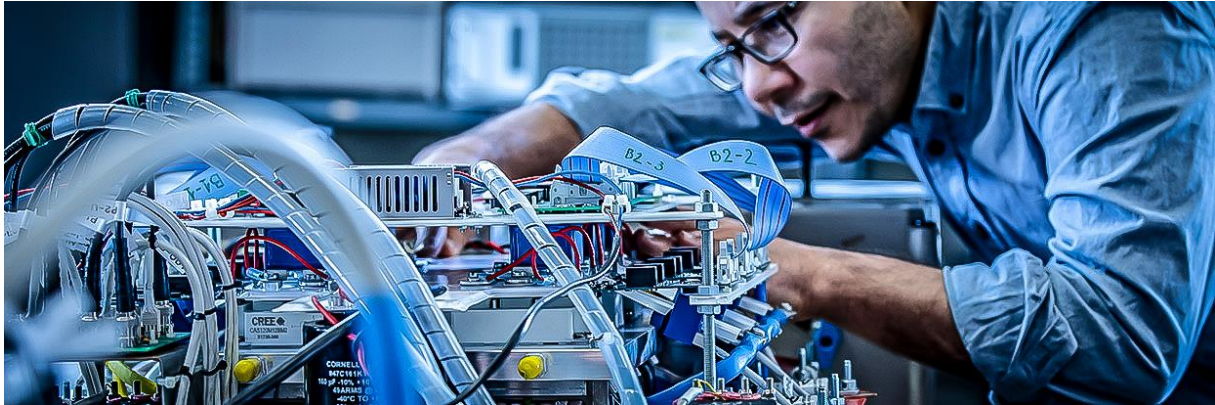


# TESTING OF AUTOMATED VEHICLES

## EQUIPMENT FOR ELECTRIC & HYBRID VEHICLES



*Location: FlandersMake@VUB*

### DESCRIPTION

Flanders Make has infrastructure to test electric and hybrid electric vehicles. This infrastructure consists of measurement equipment for vehicles and vehicle monitoring, as well as a vehicle dyno-roller bench and several self-build electric vehicles' components and production electric and hybrid vehicles.

The measurement equipment can be used for detailed roller bench testing and on-road testing of vehicles while GPS and CAN-based data-loggers can be used for vehicle and fleet monitoring. The available electric & hybrid vehicles and their historic data can be used for performance and behaviour benchmarking. Our infrastructure includes a collection of chargers (fast, semi-fast, slow) that enable the use and testing of electric and plug-in hybrid vehicles in a wide range of use cases. The new Open vehicle Platform with connected IoT (with Digital Twin) enables us to test all vehicle components including emerging technologies and control unit systems and improving the design and control of the vehicle systems.

### TECHNICAL SPECIFICATIONS

We have the following equipment available:

- Vehicle dyno-roll bench (200km/h)

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- Automated test bench for electric two-wheelers
- In-wheel-motor test rig - Open Vehicle Platform with connected IoT
- 2 mobile data-acquisition systems for on-road testing of vehicles (CompactRio)
- 200 GPS-based vehicle data-loggers
- Datron speed measurement device
- 4 electric vehicles (2 x Nissan Leaf, KONA and BMW i3-Rex)
- 2 plug-in hybrid electric vehicles (Volvo V60 and Mitsubishi Outlander)
- 4 e-karts
- 1 Formula Race electric car
- 20 public plugs (mode 1, 2 and 3), 2 to 3.6kW AC, 7kW AC and 22kW AC
- 2 indoor charge boxes (mode 3)
- 1 fast charger (mode 4) / 50kW CHAdeMO
- DC CHAdeMO EV connector (up to 500V and 120A)
- DC CCS EV connector (up to 100V and 125A) - EVSE tester

## OUR OFFER

We offer our expertise in testing of electric and hybrid vehicles with roller bench and on-road tests, and vehicle fleet monitoring. Our infrastructure and equipment allow us to apply our expertise and make comprehensive assessments of the vehicle, its performance and behaviour. Including following testing capabilities:

- Powertrain components and subsystems testing and evaluation via the Open Vehicle Platform
- Power electronics and vehicle powertrain testing up to 350kW
- Automotive charging and charging infrastructure in G2V and V2G modes
- Conformance of charging systems (incl. standard testing and analysis communication protocol (PWM, PLC)
- High accuracy measurement methods, developed especially for analysis of electrical signals described in IEC61851-1
- Testing and validation of control system units (CSUs) and energy management systems (EMSs) for vehicle drivetrains.

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## INTERESTED?

Contact [contact\\_Mobi@flandersmake.be](mailto:contact_Mobi@flandersmake.be) for more information.