



Choose certainty.
Add value.

Dynamic impact test for electric vehicle batteries

Develop safer batteries through
comprehensive impact tests.

Your challenges

The high-voltage batteries used in electric vehicles face many challenges in terms of functional safety and crash safety. In order to address these challenges, vehicle OEMs and battery systems manufacturers need to have reliable information on the safety of the product during accident conditions. To ensure that the battery is as safe as a conventional fuel tank, it is necessary to test electric vehicle batteries by modelling the actual conditions of a crash that may cause major deformation of the battery.

What is a dynamic impact test?

A dynamic impact test simulates a real vehicle accident to determine the true safety performance of the battery when the car body is deformed.

Why is this test important for your business?

Current safety standards for high-voltage batteries do not accurately simulate what happens during an actual

vehicle crash. In order to assess the safety performance of batteries in severe crashes more realistically, a comprehensive series of dynamic impact tests with properly defined parameters is required.

What additional information is required for this test?

Manufacturers must provide more information about battery and vehicle design. For example, details on how the batteries are mounted in the vehicle will determine the test set up and parameters, leading to more accurate results.

How can we help you?

TÜV SÜD can perform dynamic impact tests for electric vehicle batteries and provide advice on the optimum test design. We have a modern, fully equipped crash testing facility staffed by a dedicated team of automotive and battery experts who collaborate with you to support your development needs.



Our dynamic impact test services

The tests are conducted at our crash test facility, which utilises impactors with variable mass and geometry. The tests can be customised according to a wide range of technical parameters such as mass and velocity to simulate different test scenarios.

Dynamic impact tests can be conducted using two different test methods:

- The moving impactor hits the battery attached to a rigid barrier.
- The moving battery hits an impactor attached to a rigid barrier to expose the battery, including the battery management system, to real deceleration.

A comprehensive technical test report is provided upon completion of the tests.

Your business benefits

- **Ascertain the safety of your product** – through a comprehensive range of tests that are necessary for the development of safe technologies.

- **Gain customer confidence** – by leveraging on TÜV SÜD's experience in e-Mobility technologies and its reputation for safety and quality.
- **Improve your product design** – with reliable test data and technical support from TÜV SÜD's team of highly experienced field experts.

Why choose TÜV SÜD?

TÜV SÜD is one of the first solutions providers to offer a comprehensive range of services to support the development of e-Mobility. We have a team of multidisciplinary experts who work collaboratively with top industry players to develop and test e-Mobility technologies.

Our experts are extensively trained in high-voltage technologies and have experience in the automotive, infrastructure, battery and alternative energy concepts. TÜV SÜD also has a global network of accredited laboratories, which enables us to provide comprehensive testing services for the e-Mobility industry.

Choose certainty. Add value.

TÜV SÜD is a premium quality, safety and sustainability solutions provider that specialises in testing, inspection, auditing, certification, training and knowledge services. Represented in over 800 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East and Asia. By delivering objective solutions to our customers, we add tangible value to businesses, consumers and the environment.

Related services

TÜV SÜD provides the following related services:

- Battery testing
- Homologation of electric vehicle
- eSafety concept
- High voltage and electrical safety training
- TÜV SÜD e-Car cycle