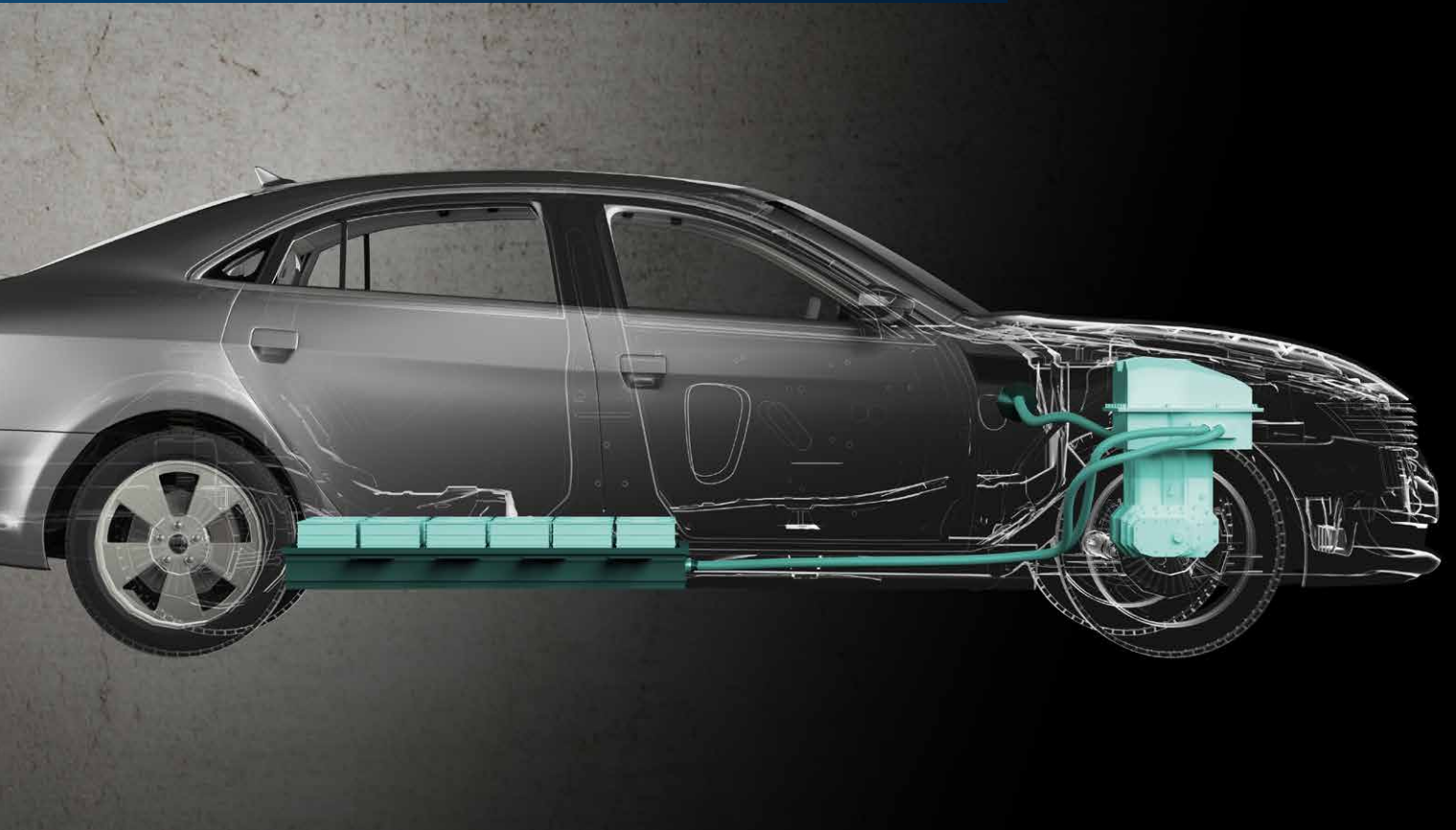
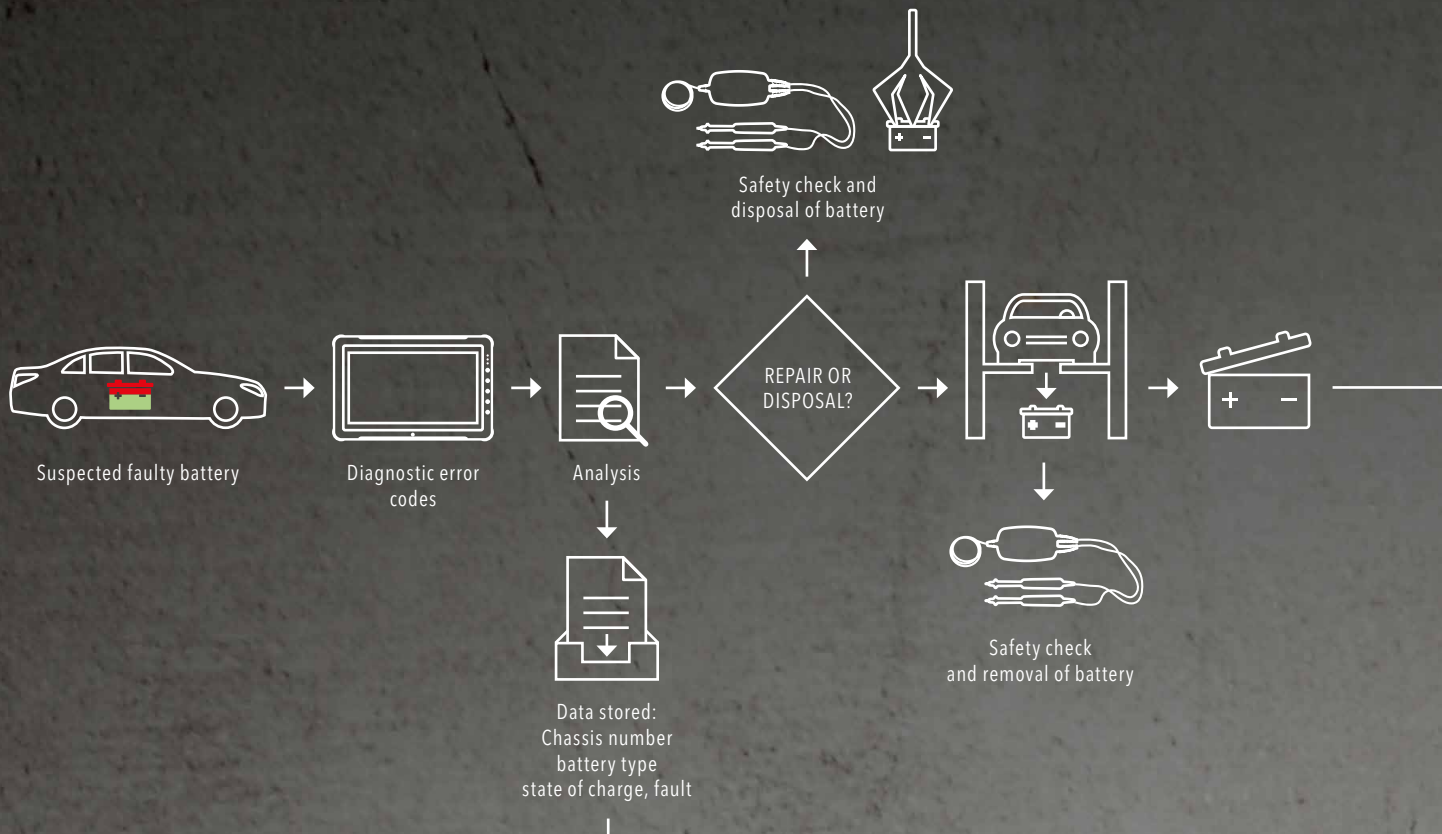


**High-performance technology.
Ultra-reliable diagnostics.**



AVL DiTEST E-MOBILITY TOOL CHAIN

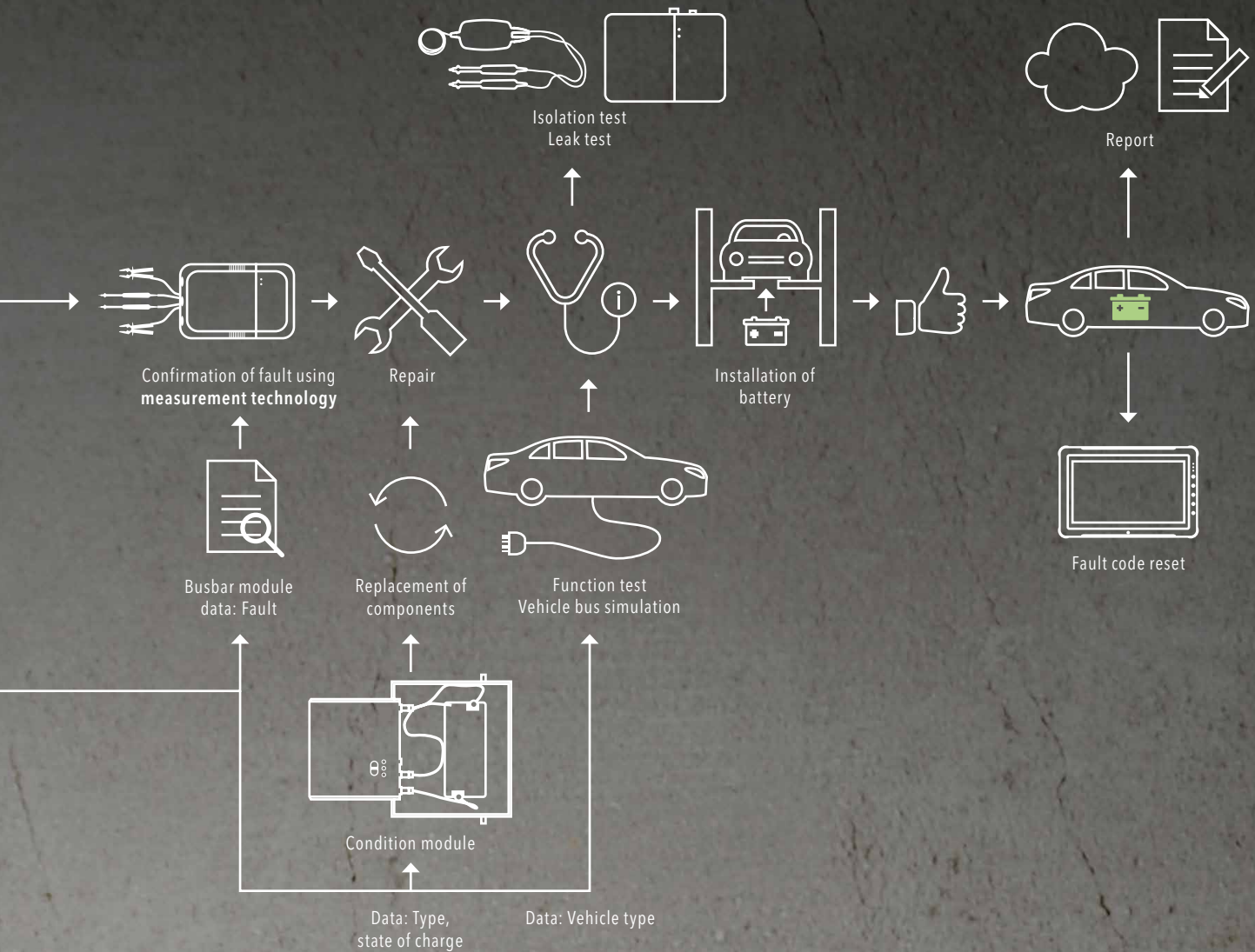
Comprehensive after sales diagnostics for HV drivetrains



Faulty batteries – Repair or replace?

DIAGNOSTICS AND REPAIR OF VEHICLE COMPONENTS IN THE WORKSHOP

After sales is facing new challenges owing to the large number of hybrid and electric vehicles on the roads. It no longer makes economic sense to replace the whole traction battery and take on the expense of shipping the complete package. AVL DiTEST supplies all the equipment you need for e-mobility, enabling you to diagnose problems reliably and thoroughly in the workshop at reasonable cost. The diagram shows a systematic repair process featuring seamless integration of all the relevant diagnostic tools. The process is designed not only to ensure accurate and reliable diagnostics and repair of the vehicle, but also to guarantee that any knowledge gained flows back into developing the technology.



The electric high-voltage drivetrain, together with the ancillary electrical components, represents a highly complex system of mechanical, electrical, electro-chemical and electronic parts. The performance of many of these parts declines with age, and they are also subject to wear and tear. This means there is potential for a wide range of faults to develop. Currently, the battery itself is usually repaired, while other HV components are typically replaced. The repair process starts with diagnostics and finding and/or localising the fault. Doing so in an efficient and targeted way requires good instructions and a systematic approach to troubleshooting. To ensure the safety of those working on it, the battery can only be removed and opened up using special tools and measuring devices. Using suitable measurement technology enables the diagnostics to be confirmed and the precise nature of the fault to be identified. If individual battery modules have to be replaced, a charging/discharging device is used to align the new module's state of charge with the battery. Before the battery can be refitted to the vehicle, the repair has to be checked, which means carrying out a function test.

This entails activating the battery and testing its individual functions using a restbus simulation designed to mimic the vehicle's behaviour. Safety features are also tested by means of fault simulations. Finally, the battery is tested for leaks using a pressure test.

Measuring devices for workshop use:

- Measurement technology for 1000V DC (current, resistance)
- Diagnostics testers and systematic troubleshooting
- Isolation testing
- Charging/discharging device (battery module balancer)
- Contact resistance measurement
- Restbus simulation
- Leakage testers
- Fault simulation, isolation faults, signal faults

At the end of the process, the vehicle user can be confident their vehicle has been properly tested, is safe, and is functioning as it should be. The whole repair process is recorded from start to finish to demonstrate it has been followed correctly.

AVL DiTEST – E-MOBILITY TOOLS.



AVL DiTEST IRP 120 INTERNAL RESISTANCE PROBE

For measuring live batteries:

- Contact resistance at the busbar
- Module internal resistance
- Resolution better than $1\mu\Omega$
- Voltage measurement up to 1000V DC
- Current measurement up to 40A
- Safe for live working
- Module condition testing



AVL DiTEST HV-SAFETY 2000

For safety testing of HV-related parts:

- Voltage measurement up to 1000V DC
- Isolation testing up to 1000V DC
- Simulation of isolation faults
- Potential compensator testing
- Measuring capacity and resistance
- Isolation resistance in accordance with ECE R100



AVL DiTEST MCS 120 MODULE CONDITIONING SYSTEM

For charging and discharging battery modules:

- Replacing modules within a battery
- Adjusting the state of charge of new modules
- Module condition testing
- Individual cell monitoring and balancing
- High level of safety
- Voltage class B1, 75V
- Charge up to 80A



AVL DiTEST MDS DRIVE 185 NG

Automotive diagnostic system:

- Suitable for diagnosing a variety of makes and models
- Comprehensive diagnostic functionality
- Suitable for cars, lorries and buses
- Very easy to use
- Select your vehicle in 3 clicks
- Quickest vehicle scan on the market

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