



VIBRATION TEST SYSTEMS

Electric and Hybrid Vehicle Battery Vibration Testing



Batteries and their subsystems are affected by vibration loads, covering a wide frequency range, and having a significant impact on the durability of the battery. In compliance with major regulations and standards for hybrid and electric vehicle batteries, mechanical vibration testing must be performed on the battery cells, modules, packs, and subsystems to test the lifetime of a battery. HBK Vibration Test Systems suit different battery sizes and performance requirements, and include everything you need.

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A VERSATILE SYSTEM FOR BATTERY TESTING FROM ONE PARTNER

Several regulations, such as **ECE R100** and **ISO12405**, have been developed to standardize the testing procedures of batteries and their subsystems. They all have one thing in common: before a battery cell, module or pack can be transported, it must be tested under the dangerous goods act.

The vibration test system must be as versatile and powerful as the vibration loads and regulations, to be easily adaptable to different test requirements for simulating real life. But that's not all, because durability tests are often repetitive, the vibration test solution must be easy to set up, conduct and sign off, ensuring that the test is accurate and consistent throughout.

HBK vibration test systems are used by the global automotive industry in Germany, the US, Korea, China, and Japan.



Versatile system

High shock-performance – even with irregular centres of gravity – in multiple directions by quickly changing the configurations between vertical and horizontal testing.



Turnkey provider

A complete system from one experienced supplier. We work closely together with environmental chamber manufacturers.



Optimally supported

Fast delivery, continuous 24/7 operation and global support through local service technicians and global spare parts provision.

VIBRATION TEST SYSTEMS FOR SMALL, MEDIUM, AND LARGE BATTERIES

Each HBK vibration test system consists of a high-performance **LDS shaker**, a **slip table** for horizontal testing, a guided or unguided **head expander** for vertical testing, a **power amplifier**, a cooling system, **transducers**, a **vibration controller**, **analysis and engineering software**, **data acquisition hardware and software**, cabling and fixtures, and **on-site installation and training**. We work closely together with third party suppliers of climatic chambers and seismic masses.



Shaker model	V875LS	V8900	V994 (hermetically sealed)
Battery type	Cells	Modules	Packs
Maximum sine force [kN/lbf]	35.59/8,000	80/17,984	289.1/65,000
Maximum shock force [kN/lbf]	84.3/18,952	254.1/57,124	760/170,854
Frequency range [Hz]	DC to 3,000	DC to 3,000	DC to 2,000
Profiles	AK LH 5.21, UN 38.3, ISO 12405 50g/6ms shock 50g/11ms shock 25g/15ms shock 30g/6ms shock 100g/6ms shock 100g/11ms shock LV124/VW80000, UL 1973, EN 61373		

GOING THE EXTRA MILE: DURABILITY ANALYSIS WITH HBK MEASUREMENT SOLUTIONS

HBK offers a battery testing solution for mechanical vibration testing, thermal testing, and electrical testing, enabling a simultaneous measurement of mechanical vibration and battery life, such as cycle simulations, power cycling, charge and discharge rate.

Contact us to get more information about HBK's battery vibration test solutions.