

I A large Variety of Tests for Cells and Batteries

- **Transportation safety according to UN38.3**
- **Safety requirement for use according to IEC62133 Chapter 7 and 8**
- **Long term/short term cycle tests** to check performances and service life in combination with defined environmental condition.
- **Simulations**, for custom project of specific applications, tests for cells and batteries of all technologies

Combinations of mechanical tests, simulations of specific environmental conditions and electrical tests upon customers' requests.

Test Equipment

Currently 240 measurement circuits for single cells to 5V (1mA - 500A) and 8 circuits for batteries to 30V (20A), 4 circuits to 15V (50A) and one circuit to 80V (50A) included single cell voltage and temperature monitoring available.

DYNAMIS Batteries

is a manufacturer of batteries and accu packs located in Dettingen near Konstanz. In our ESD-protected facility we produce standard primary and secondary packs as well as custom design solution for special requirements.

For a variety of chemical systems, e.g. NiMH, Li Ion as NMC or Iron Phosphate, as well as Li Polymer . DYNAMIS support you from project start to successful series implementation and ensures the uninterrupted service for optimisations and running productions.

As a supplier of complete solutions we offer comprehensive development of hard- and software for battery management systems, including custom design solutions.

Test and Measurement procedures have been available from our **DYNAMIS Test Laboratory** since autumn 2012, qualifying DYNAMIS products as well as others on customers request.

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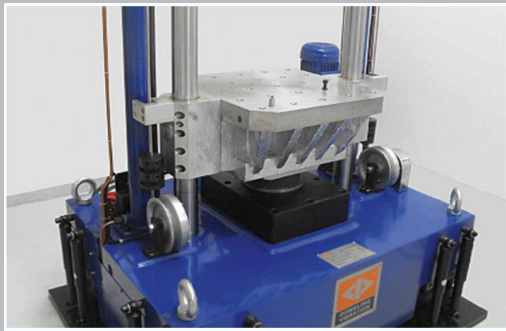


DYNAMIS Test Laboratory for Lithium and other Technologies

Various electrical and mechanical tests and measurements according to customers' requests.

For special applications, project-defined or according to standards like UN38.3 or Safety requirements according IEC 62133 Chapter 7 and 8.





I Low Pressure and Climate Tests

Simulation of low pressure conditions as well as tests of tightness / internal electric connections for batteries, performed at high rate temperature changes and large temperature differences.

Example: Simulation of air pressure during air transport (11.6 kPa) according to UN38.3; temperature changes from/to +75°C / -40°C within 30 min.; stress tests up to 150°C; and more.

I Shock Tests for Heavy Knocks

Simulation of possible knocks during transportation.

Example: Shock test for batteries according to UN38.3 with half-sine signals of 150 gn force and a time width of 6 ms, sequentially performed as 18 shocks in 3 perpendicular axis of orientation.

I Vibration Tests of Different Kinds

Simulation of vibrations during transportation or application operations under a variety of different conditions.

Example: Vibration test according to UN38.3 = 12 repetitions ea. of 15 min. duration, accelerating from 7 to 200 Hz and back, as well as using constant acceleration phases.

I Free Fall Test according to IEC

Simulation of a free fall onto a defined surface using different orientations and angles.

Example: Free fall onto concrete from a height of 1.0 m, 3 x = IEC 62133 requirement.

I Short Circuit, Overcharge and Forced Discharge Tests

Testing of batteries' ability to withstand overcharge conditions, as well as the safety of primary or rechargeable cells during forced discharge conditions.

Example: Short circuit simulation for cells with very low resistance performed at 57°C according to UN38.3 or safety requirement according to IEC62133 Chapter 7 and 8, forced discharge using an additional 12 VDC source.

I Impact Test according to UN38.3

Simulation of a defined impact using a massive weight onto a battery cell.

Example: Impact by 9.1 kg onto a fixed-bar battery cell.