

3-AXIS BATTERY VIBRATION TESTER



3-Axis Battery Vibration Tester - ToronFT™ 3A

ToronFT™ 3A 3-Axis Battery Vibration Tester is an advanced electromagnetic vibration testing instrument designed for performing sinusoidal vibration operational tests and sinusoidal vibration endurance tests on lithium batteries, battery modules, battery packs, and electronic components across all three spatial axes (X, Y, Z). This instrument uses advanced electromagnetic vibration technology for convenient frequency modulation and stable vibration output — and compared to conventional mechanical vibration generators, electromagnetic vibration systems offer significantly longer service life, lower maintenance requirements, and superior vibration control precision.

The ToronFT™ 3A is widely used for detector vibration testing and environmental endurance vibration testing, and is suitable for combustible gas detectors, fire electronic products, and a broad range of consumer and industrial electronic product categories requiring sinusoidal vibration qualification.

APPLICATIONS

3-Axis Battery Vibration Tester - ToronFT™ 3A Applications

The ToronFT™ 3A is applicable for sinusoidal vibration testing of:

- Lithium battery cells, modules, and packs requiring vibration operational and endurance testing for mechanical safety qualification per IEC 62133 and UN 38.3
- Battery management systems (BMS) and electronic control units for electric vehicles requiring vibration endurance testing
- Combustible gas detectors for industrial, commercial, residential, and portable applications requiring vibration test certification
- Fire detection and fire electronic products requiring environmental vibration testing per applicable product safety standards

- Consumer electronic products, portable devices, and electronic instruments requiring sinusoidal vibration qualification
- Research and development testing of new lithium battery designs, packaging systems, and mounting configurations for vibration resistance optimization



FEATURES

3-Axis Battery Vibration Tester - ToronFT™ 3A Key Features

- Advanced electromagnetic vibration technology delivers superior frequency modulation precision and vibration stability compared to conventional mechanical vibration generators — providing more accurate, reproducible sinusoidal vibration test conditions for lithium battery qualification
- Full 3D vibration capability (X, Y, and Z axes) enables comprehensive vibration testing of lithium batteries and electronic products in all three spatial orientations on a single instrument
- Supports both sinusoidal operational vibration tests and sinusoidal endurance vibration tests — covering the full scope of vibration qualification requirements for lithium batteries, fire detectors, and electronic products
- Significantly longer service life compared to mechanical vibration generators — electromagnetic systems have no cam, crankshaft, or mechanical wear components, reducing maintenance requirements and improving long-term reliability
- Suitable for a broad range of test specimens — from small lithium battery cells to battery modules, packs, combustible gas detectors, and consumer electronic products — covering the diverse vibration test requirements of IEC 60068-2-6 and UN 38.3
- Complies with IEC 60068-2-6, UN 38.3 T.3, and IEC 62133, providing internationally recognized sinusoidal vibration test results for lithium battery and electronic product certification in North America and globally

THEORY & METHOD

Theory and Method

Sinusoidal vibration testing subjects lithium battery and electronic product specimens to controlled, periodic sinusoidal mechanical vibration across a defined frequency range and acceleration level. Operational vibration tests (sinusoidal)

evaluate whether the battery or device continues to function correctly during vibration — simulating the vibration environment of normal use in vehicles, machinery, or portable applications. Endurance vibration tests (sinusoidal) evaluate whether the battery maintains its mechanical integrity and safety performance after sustained vibration exposure — simulating the cumulative vibration damage experienced over the product lifetime.

In the ToronFT™ 3A, the electromagnetic vibration drive system generates sinusoidal vibration at controlled frequencies and amplitudes in the X, Y, or Z axis direction. Electromagnetic technology provides superior frequency modulation precision and vibration stability compared to mechanical systems, enabling accurate replication of the specific vibration profiles required by IEC 60068-2-6 and UN 38.3. The specimen is mounted on the vibration table in the required orientation, and the vibration sweep or fixed-frequency test is conducted per the applicable test standard. The 3D (X, Y, Z) axis capability ensures comprehensive vibration qualification of lithium batteries and products in all orientations.

TECHNICAL SPECIFICATIONS

3-Axis Battery Vibration Tester - ToronFT™ 3A Technical Specifications

Parameter	Specification
Product Name	3-Axis Battery Vibration Tester — ToronFT™ 3A
Vibration Technology	Electromagnetic (advanced frequency modulation)
Test Axes	X, Y, Z (3D — three-axis)
Vibration Types	Sinusoidal operational (detector) vibration; sinusoidal endurance vibration
Advantage over Mechanical	Significantly longer service life; superior frequency modulation; stable vibration output
Applicable Products	Lithium batteries, battery modules, packs; combustible gas detectors; fire electronic products; consumer electronics

For more information, pricing, or to request a quotation, please contact ToronFT. Specifications are subject to change without prior notice.



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