

Heavy Weight Impact Test Machine For Battery Safety Testing

Item Number: DA09



Introduction

Heavy weight impact test machine evaluates battery resistance to controlled drop impact, helping laboratories verify no-fire and no-explosion safety performance with PLC control, reinforced protection, adjustable height, and precision positioning.

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Application	Description	Key Benefit
Lithium-ion cell safety validation	Tests individual battery samples under a controlled falling-weight event using the specified cross-bar interface.	Supports evaluation of the required no-fire and no-explosion outcome after impact.
Prismatic battery mechanical-abuse testing	Positions the cross bar across the center of a prismatic battery, parallel to its bottom surface, before the impact weight is released.	Creates a defined, repeatable loading arrangement for prismatic-cell assessment.
Battery research and development	Allows R&D teams to examine how prototype cells respond to impact at the 610 mm prescribed setting or other selected heights within the available range.	Helps compare sample behavior under controlled mechanical conditions.
Cell manufacturing quality evaluation	Provides a dedicated enclosed station for testing separate production or evaluation samples one at a time.	Supports consistent sample-by-sample impact test handling.
Battery safety laboratory testing	Combines PLC parameter display, protected observation, lighting, reinforced access hardware, and pressure-relief functionality in one test enclosure.	Gives laboratory staff a purpose-built environment for impact test procedures.
Materials and component investigation	Enables teams investigating battery construction, internal structures, or protective designs to apply a known mass through a defined bar contact condition.	Provides controlled impact inputs for comparative development work.
Compliance-oriented battery test preparation	Delivers the standard 9.1 kg weight, 15.8 mm diameter bar, and adjustable height configuration described for the impact method.	Helps laboratories set up the specified test geometry and drop condition.

Parameter	Specification
Product item number	DA09
Test purpose	Tests battery safety performance by dropping different weights from different heights with different force-bearing areas; under the prescribed test, the battery shall not catch fire or explode.
Impact test method	Place the battery sample on a flat surface. Position a 15.8 mm diameter bar crosswise at the center of the sample. Drop a 9.1 kg weight from 610 mm onto the sample. Each sample battery receives one impact only; use a different sample for each test.
Standard impact weight	9.1 kg +/- 0.1 kg
Standard impact bar	Diameter 15.8 mm; length >=60 mm
Drop height	0-700 mm adjustable; the weight can be raised to a specified height and released to ensure vertical free fall without inclination or sway
Intelligent controlled height	610 mm
Height display method	Encoder display
Display precision	0.1 mm
Height error	+/- 5 mm
Display and control system	PLC touch screen displays test parameters; PLC touch-screen control system

Parameter	Specification
Lifting method	Electric lifting
Drop structure	Dual-column design; reduces friction between the falling weight and the four enclosure walls and supports free fall
Cross-bar diameter	15.8 mm +/- 0.1 mm
Cross-bar placement	Placed vertically across the middle of the battery; the falling weight strikes the steel bar; the bar remains parallel to the bottom surface of a prismatic battery
Test area	One independent test area
Inner-box material	SUS 304# stainless steel; 1.0 mm thickness with reinforcement; total thickness with outer box is 80 mm
Outer-box material	Cold-rolled plate with baked finish; 1.2 mm thickness
Upper and lower impact surfaces	Steel plate
Enclosure front door	Single door with observation window, cold-drawn handle door lock, exposed reinforced hinges on the left, and strong door locking clasp on the right
Viewing window	390 x 360 mm; 20 mm thick tempered explosion-proof glass
Viewing-window protection	Explosion-proof film plus protective steel mesh
Lighting	Mounted outside the viewing window and reflected into the inner chamber
Pressure relief	Pressure-relief device installed at the upper rear of the enclosure bottom; pressure door opens automatically when pressure reaches the pressure-switch setting
Exhaust port	Diameter 100 mm; exhaust fan installed at the rear of the enclosure
Mobility	Four casters on the base for movement and fixing
Enclosure dimensions	W940 x D780 x H1660 mm (subject to final design dimensions)
Power supply	AC 220V, 50HZ, single phase
Power	2.0KW
Machine weight	Approx. 250KG