VECTOR
SCIENTIFIC TESTING DEVICES

DROP WEIGHT IMPACT TESTER

The Vector Drop Weight Impact Tester sets a benchmark in material testing, meticulously engineered to meet international standards such as ASTM and ISO. This device is the ultimate solution for evaluating how materials respond to dynamic loading, ensuring precise measurements and reproducibility in compliance with standards like ASTM D3763, ISO 6603, ASTM D7136, ISO 11343, and ISO 8256. Its cutting-edge technology caters to a wide range of materials, including plastics, composites, metals, and light alloys.

VTR-17-000

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Vector Drop Weight Impact Tester

Advanced Precision for High-Energy Impact Testing

Overview

Impact testing is a cornerstone of material science and engineering, providing insights into properties like impact strength, fracture toughness, and energy absorption. The Vector Drop Weight Impact Tester is designed to simulate real-world dynamic loads, enabling manufacturers, researchers, and quality control professionals to understand and enhance material performance. Its adaptability and robust design make it essential for industries like metallurgy, aerospace, automotive, construction, and plastics processing.

Standards

This versatile testing system complies with a comprehensive array of international standards, ensuring global compatibility:

- ISO 3127, ISO 4422, BS EN 12608, BS EN 744, BS 2782-11
- ASTM D2444
- GB/T 14152, GB/T 10002.1, GB/T 8814, GB/T 6112, GB/T 14153, GB/T 11548
- ISO 6603-2, ASTM D3763 (Plastic plates)
- ISO 7765-2 (Plastic films)
- ISO 18352, ASTM D7136 (Composites)

By adhering to these standards, the tester delivers results that are both reliable and globally recognized, making it indispensable for international operations.

Key Features

- Wide Energy Range: Provides impact energies from 0.3J to 2000J, accommodating tests from lightweight films to heavy-duty metal components.
- Precision Control: Advanced PLC systems ensure accurate calibration of drop heights and impact locations for reliable results.
- Real-Time Data Acquisition: High-speed optical sensors capture precise measurements of force, displacement, and energy.
- Advanced Software: User-friendly interface for inputting energy or height, automatic calibration, and detailed reporting with photo integration.
- Durable and Robust Design: Constructed with high-strength steel and aluminum, with a ground-fixed frame to absorb impact forces effectively.
- Safety Features: Fully enclosed cabinet, safety interlocks, emergency stop functions, and anti-rebound systems protect operators.
- Customizable Configurations: Adjustable drop heights, masses, and specimen holders, with optional climatic chambers for temperature-specific testing.
- Automation: Motorized systems for automatic lifting and resetting of the impactor streamline the testing process.

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The Drop Weight Impact Tester excels in assessing material behavior under impact, providing critical data for applications like:

1. Preparation: Specimens are prepared according to standard guidelines, with optional cooling chambers for low-temperature conditioning.
2. Testing: The device delivers consistent energy impacts, capturing detailed data through integrated sensors.
3. Analysis: Generate comprehensive reports, including graphical representations of energy absorption, deformation, and fracture characteristics.

Advanced Capabilities

The Drop Weight Impact Tester offers advanced functionalities that enhance precision, efficiency, and safety. Automatic locking mechanisms ensure the impact hammer remains securely in position during testing. Electromechanical drives allow precise positioning and controlled release of the hammer from preset heights, ensuring consistent energy delivery. Real-time data acquisition, supported by optical sensors, captures high-resolution measurements for force, displacement, and energy.

Integrated software allows operators to input joules or height, automatically calibrating the machine for exact requirements. Reporting capabilities include photo integration for pass/fail documentation. The system supports secure multi-level user access, ensuring only authorized personnel can operate or modify settings. Safety interlocks, including fully enclosed cabinets and emergency stop functions, enhance operational security.

For versatility, the tester accommodates various hammers and weights to meet national and international standards, with bespoke options available. Optional temperature chambers allow material performance evaluation under extreme environmental conditions. Accessories like anti-rebound systems and instrumented impactors further enhance the machine's capabilities, making it a comprehensive solution for impact testing.

The Vector Drop Weight Impact Tester combines advanced features with user-friendly functionality to deliver unmatched precision and reliability.

a It is crafted from high-strength steel and aluminum, with a robust design that fixes directly to the ground, ensuring that impact forces are absorbed efficiently. Adjustable feet maintain perfect leveling, and a small viewing window allows operators to observe hammer movements. A fully enclosed security cabinet enhances operator safety.

The system offers impact energies ranging from 0.3J to 2000J, enabling versatile applications from lightweight films to heavy-duty metal components. Advanced PLC controls and electromechanical systems allow precise calibration of drop heights, ensuring consistent and accurate results. Additionally, an optional module for measuring impact hammer speed provides enhanced data accuracy. The user-friendly software integrates reporting capabilities, including photo documentation and multi-level security features, streamlining operations while maintaining safety.

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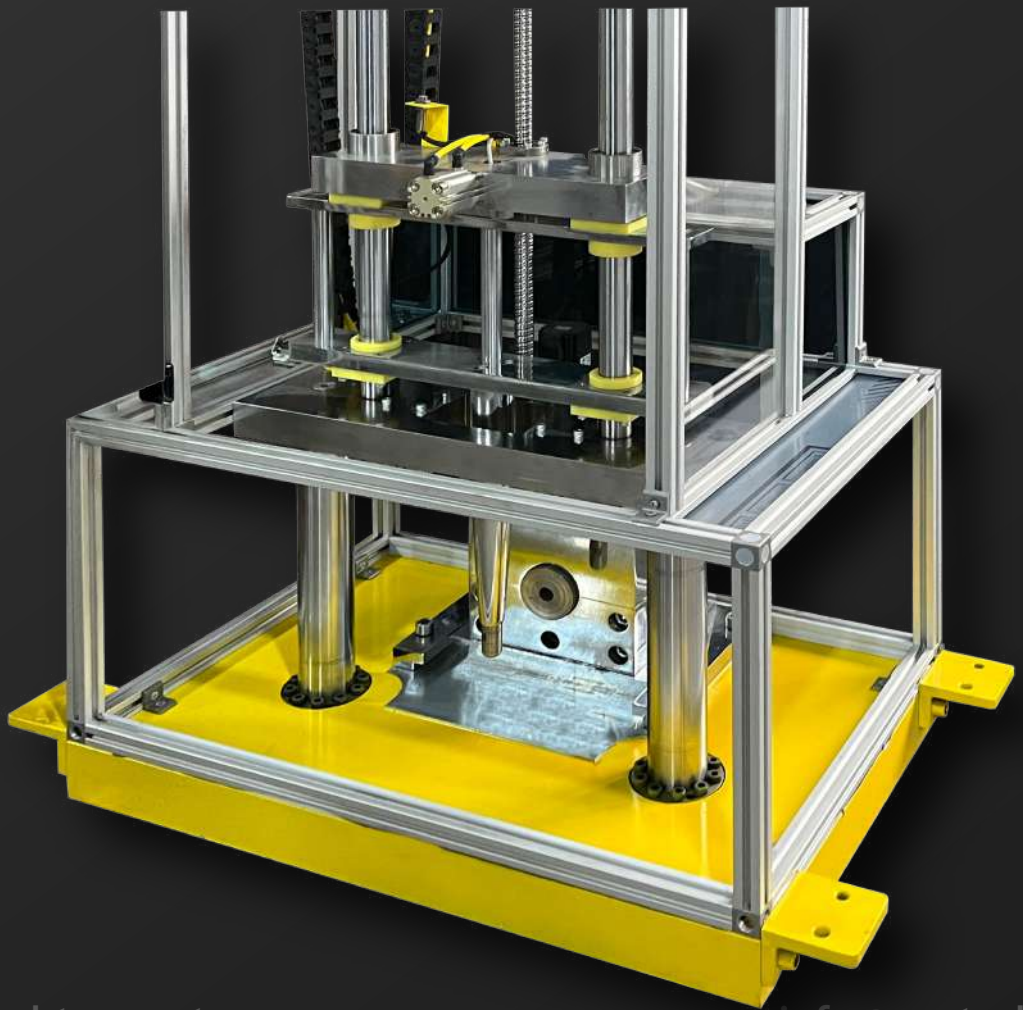
Industries

- Material Science: Testing for energy absorption, toughness, and impact resistance.
- Metals and Alloys: Evaluating fracture toughness and dynamic load durability.
- Aerospace and Automotive: Ensuring materials meet safety and performance standards.
- Construction: Assessing the durability of building materials under impact.
- Plastics and Composites: Analyzing puncture resistance and post-impact performance.

Optional Configurations

To further enhance the system's versatility, several optional accessories are available:

- Load Cells: Achieve precise force measurement.
- High-Speed Sensors: Measure impact speed with unparalleled accuracy.
- Instrumented Impactors: Collect granular energy and displacement data for advanced analysis.
- Specimen Holders: Accommodate various shapes and sizes for comprehensive testing.
- Temperature Chambers: Simulate extreme conditions to test material performance under stress.



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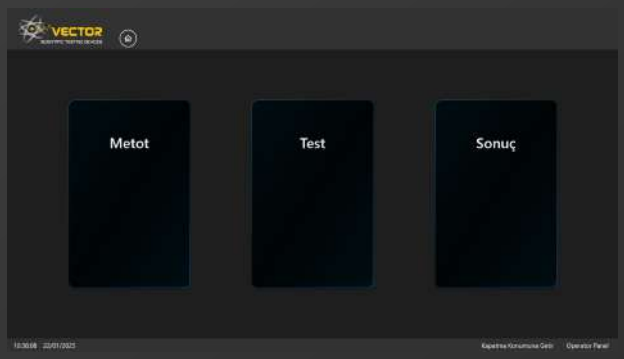

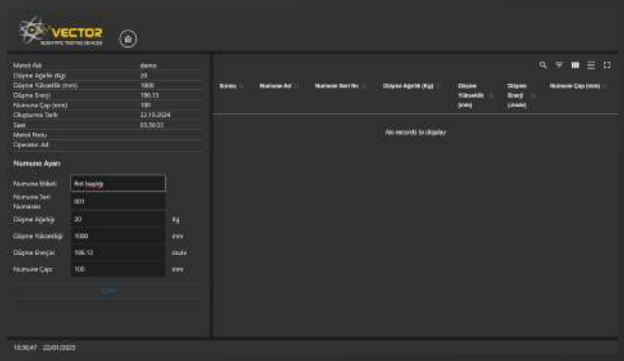

TECHNICAL SPECIFICATION

Test Weight Release Distance	2,000 millimeters
Test Weight Size	Up to 20 kilograms
Weight Shape	Hemispherical
Impact Force	From 0.2 J to 2000 J
Electrical System (Power)	220 V.AC electrical system
Control Technologies	Fully automated, integrated mechanical, electrical, and automatic control technologies
Compliance Standards	ASTM D3763, ASTM D7136, ISO 6603, ISO 8256, ISO 11343, ISO 3127, ISO 4422, BS EN 12608, BS EN 744, BS 2782-11, ASTM D2444, GB/T 14152, GB/T 10002.1, GB/T 8814, GB/T 6112, GB/T 14153, GB/T 11548, ISO 6603-2, ISO 7765-2, ISO 18352, EN397
Digital Control Panel	HMI and computer controlled.
Safety	Fully enclosed cabinet, electrical and mechanical test area protections, safety interlocks, and safety circuit
Recording and Display System	Real-time data recording and display with testing curve capability
Frequency Response Range	2,000 Hz
Automatic Weight Detection Sensor	Optional
Material Compatibility	Plastics, composites, metals, light alloys, products
Construction	High-strength steel and aluminum; ground-fixed frame for impact absorption
Automation	Motorized lifting/resetting of impactor
Optional Add-Ons	Load cells, high-speed sensors, instrumented impactors, temperature chambers, and various specimen holders
Software Features	Automated calibration, joules/height input, pass/fail photo documentation, and multi-level user access
Testing Applications	Impact strength, fracture toughness, energy absorption
Industries	Aerospace, automotive, metallurgy, plastics, composites, construction
Advanced Capabilities	Electromechanical hammer positioning, high-resolution real-time data capture, adjustable drop heights and weights
Dimensions and Setup	Adjustable feet for leveling, small viewing window for observation, robust direct-to-ground fixation
Measurement Accuracy	Supported by optical and high-speed sensors

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