

# **PENDULUM IMPACT TESTER**



Elevate your material testing capabilities with our 450 Joule Pendulum Impact Tester, a high-precision instrument engineered for conducting Charpy and Izod impact tests on a wide range of materials, including metals and polymers. Designed to meet international standards such as ASTM E23 and ISO 148, this floor-mounted model provides accurate measurements of material toughness and resistance to high-energy impact loading. Ideal for materials testing laboratories, research institutions, and quality control departments, this tester offers advanced features to meet the demands of modern material analysis.



**VTR-II-0450**



# 450 Joule Pendulum Impact Tester

## Advanced Precision for High-Energy Impact Testing

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### Innovative Design and Enhanced Features

The 450 Joule Pendulum Impact Tester is a floor-type model built for stability and precision. Floor mounting holes are incorporated into the robust base, allowing for secure installation and minimizing energy loss during high-energy impact tests. This ensures that the maximum amount of energy is transmitted to the specimen, enhancing the accuracy and reliability of test results.

A fully enclosed protective cabinet with a rigid frame is standard for this model, providing superior safety and containment of debris during testing. The enclosure not only protects the operator from moving parts and potential fragments but also contributes to the reduction of environmental influences on the test, such as air currents, which could affect the pendulum's motion.

### Dedicated Control Panel with Touch Screen Interface

The tester features a dedicated control panel equipped with both physical control buttons and an intuitive touch screen interface. This combination allows for efficient operation and easy navigation through test settings and parameters. The touch screen provides real-time data display, enabling operators to monitor the instantaneous position of the hammer, potential energy, and absorbed energy during testing. Physical buttons offer tactile feedback for essential functions, ensuring reliable operation even in demanding laboratory environments.

### Quick Test Functionality with Lid-Mounted Button

For enhanced efficiency, a quick test button is integrated into the lid of the protective enclosure. This feature allows operators to initiate tests directly from the enclosure, streamlining the testing process and reducing the time between specimen placement and impact. The lid-mounted button is designed with safety interlocks to prevent accidental activation, ensuring that tests are only conducted when the enclosure is securely closed.

### Versatility with Multiple Energy Capacity Options

In addition to the 450 Joule model, we offer a range of pendulum impact testers with capacities of 300 Joule, 450 Joule, 600 Joule, 800 Joule, and higher. This variety allows you to select the instrument that best fits your testing requirements, whether you are assessing materials with lower impact resistance or conducting high-energy tests on robust materials.

### Precision Engineering for Accurate Results

The tester utilizes high-performance carbon double rods for the pendulum, providing significant stiffness and optimal mass distribution concentrated at the point of impact. This design minimizes natural vibrations and ensures repeatable, reproducible test results. The high ratio of instrument mass to pendulum mass allows accurate assessments in high-energy impact scenarios.

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### Automatic Pendulum Identification and Intelligent Operation

Each pendulum is equipped with electronically readable coding that automatically identifies the pendulum in use. This system ensures that measured values are always determined in the correct range and in accordance with the relevant standards, eliminating the risk of erroneous measurements. The instrument stores data on air and bearing friction, which is factored into calculations for enhanced accuracy.

### User-Friendly Operation and Ergonomic Design

Operator convenience is a key aspect of the tester's design. The controls are ergonomically positioned at a uniform height, reducing fatigue during extended use. The pendulum features a quick-change mechanism, allowing for tool-less swapping of pendulums to accommodate different testing energies. Fixtures can be exchanged rapidly, with precision guides and limit stops ensuring accurate alignment and positioning.

### Advanced Safety Features

Safety is paramount in high-energy impact testing. The fully enclosed protective cabinet with a rigid frame offers superior protection against flying debris and accidental contact with moving parts. The cabinet is equipped with safety interlocks that prevent the pendulum from being released unless the enclosure is securely closed. An emergency stop button is readily accessible, allowing operators to halt the test immediately if necessary.

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### Floor Mounting for Stability and Energy Efficiency

The base of the tester includes floor mounting holes, enabling secure anchoring to the laboratory floor. This mounting enhances the stability of the instrument and minimizes energy loss due to movement or vibrations during high-energy impacts. By ensuring that the tester remains firmly in place, you achieve more accurate and consistent test results.

### High-Resolution Measurement and Data Management

The tester is equipped with a high-resolution digital encoder that measures the impact angle with a precision of 0.01 degrees. Freely selectable starting angles allow for optimized test parameters, such as impact speed and energy loss at impact. After each test, the pendulum is automatically caught and returned to its initial position by a motor, improving efficiency.

All test data is automatically saved within the integrated software, facilitating easy retrieval, analysis, and reporting. The system supports data export in various formats for integration with external analysis tools or laboratory information management systems (LIMS). Connectivity options include an USB interface and USB plug-and-play for PC integration.



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### Compliance with International Standards

The 450 Joule Pendulum Impact Tester complies with major international standards for impact testing, including:

**Charpy tests:** ISO 148, ASTM E23

**Izod tests:** ASTM E23

Other standards as applicable for high-energy impact testing

Compliance ensures that your test results are globally recognized and accepted, making the tester suitable for research, quality control, and material development across various industries.

### Key Features and Advantages

**High Energy Capacity:** Suitable for testing materials requiring up to 450 Joules of impact energy.

**Floor-Type Model:** Provides enhanced stability and minimizes energy loss during high-energy tests.

**Fully Enclosed Protective Cabinet:** Ensures maximum safety with a rigid frame and interlocked doors.

**Dedicated Control Panel:** Combines touch screen technology with physical buttons for efficient operation.

**Lid-Mounted Quick Test Button:** Allows for rapid initiation of tests directly from the enclosure.

**Quick-Change Pendulum and Fixtures:** Enables rapid adaptation to different testing requirements without tools.

**Advanced Safety Interlocks:** Prevents operation unless all safety conditions are met.

**High-Resolution Encoder:** Provides precise measurement of impact angles for accurate energy calculations.

**Data Management and Connectivity:** Facilitates easy data retrieval and integration with laboratory systems.

### Optional Accessories and Configurations

**Alternative Energy Capacities:** Models available in 300 Joule, 600 Joule, 800 Joule, and higher capacities.

**Temperature Conditioning Equipment:** For testing specimens at various temperatures.

**Additional Fixtures:** Accommodate different specimen types and testing standards.

**Extended Software Capabilities:** For advanced data analysis and reporting.

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### Conclusion

The 450 Joule Pendulum Impact Tester represents the forefront of high-energy impact testing technology. Its combination of precision engineering, advanced safety features, and user-friendly operation makes it an essential instrument for laboratories conducting high-stress material evaluations. Whether you are testing metals, polymers, or advanced composites, this tester provides the accuracy and reliability needed to make informed decisions in material selection and quality assurance.

### Invest in Precision and Safety

Equip your laboratory with the 450 Joule Pendulum Impact Tester and experience the difference that advanced technology and engineering excellence can make in your material testing processes. Trust in our commitment to quality and innovation to support your most demanding testing requirements.

# TECHNICAL SPECIFICATION

Feature	Specification
Product Name	450 Joule Pendulum Impact Tester
Model	VTR-11-0450
Application	Charpy and Izod impact tests on metals and polymers
Standards Compliance	ASTM E23, ISO 148, ISO 179, ISO 180, ISO 8256, ASTM D256, ASTM D6110, ASTM D4812, ASTM D1822, DIN 53435
Energy Capacity	450 Joules
Hammer Mass	30.5 kg
Hammer Length	77 cm
Angle Measurement Precision	0.01 degrees
Energy Loss	Less than 0.5%; software correction available
Encoder Type	High-resolution digital encoder
Data Storage Capacity	Up to 10,000 test records
Password Management	Up to 8 user passwords
Test Methods Supported	Charpy, Izod, Tensile impact, Dynstat bending impact
Specimen Types	Metals, Polymers
Specimen Sizes	Adjustable lower bracket for different sizes
Interchangeable Jaws and Anvils	Yes; quick-change adapter plates
Dual Testing Capability	Yes; Charpy and Izod without additional equipment
Interface	Touch screen and physical buttons
Real-Time Monitoring	Displays hammer position and potential energy
Automatic Hammer Return	Yes; motorized system
Emergency Stop Functionality	Yes; emergency stop buttons
Lid Sensor Mechanism	Yes; automatic braking when lid is opened
Password Protection	Yes; required before control access
Operation Modes	Test mode and manual mode
Protective Enclosure	Yes; shields operator from moving parts
Safety Interlocks	Operation restricted unless safety conditions met
Protective Covers	Side and front covers with secure screws
Data Export Options	Xlsx, csv
Connectivity	USB Type-B port
Device Dimensions (W × D × H)	2400 x 1000 x 2400 mm
Device Weight	700kg
Voltage Requirement	220 V AC (±5%)